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ABSTRACTS

I. ORGANIC FIBERS

NEW FIBERS. A. C. Roberts. *Textile Age 9,* No. 5, 74, 76-7 (May); No. 6, 68, 70, 72, 74-5 (June 1945). The properties of new artificial and synthetic fibers are discussed in relation to their probable postwar uses. The descriptions are condensed from a previous series of more detailed papers about new synthetic and natural fibers. The three principal protein fibers (from casein, soybean, and peanut) are compared.

SYNTHETIC FIBERS. Postwar question: cotton vs. synthetic fiber or cotton and synthetic fiber. John Leahy, Cotton Research Committee of Texas. *Textile Bull. 68,* No. 11, 21, 22, 44 (August 1, 1945). The author considers rayon the pacemaker for synthetic fibers. He does not anticipate a drastic decline in the price on synthetics which will impose uneconomic values on cotton production. An estimated expansion of 500% productive capacity would be required to assume the burden now carried by cotton, if it were possible to substitute rayon for cotton in all uses. Other fibers are more competitive among themselves than with cotton; some fibers are merchantable as fibers only when blended with cotton. The synthetics pose an "apparent threat" to cotton, nevertheless, and the need for research on methods for retaining the valuable qualities of cotton and avoiding degredation during processing is emphasized.

I, 1. Vegetable

COTTON EXCHANGE. The New York Cotton Exchange. Anon. *Cotton Trade J. 32,* Vol. 25, Section 2, pp. 6-8, 26 (Aug. 11, 1945). Formation of the Exchange in 1870 and its subsequent history are given briefly. Current operation methods are described in detail: trading is in 100-bale units; the greatest fluctuation in price allowed under rules of exchange is two cents per pound in one trading day; no delivery date is contracted greater than 12 months ahead; contracts are "basis middling" contracts, 15/16 inch staple; most of the trading is for deliveries in January, March, May, July, October, and December ("active months"); members of the exchange execute orders for buyers and sellers throughout the world.

COTTON USES. E. C. Westbrook, Georgia Agricultural Extension Service. *Textile Colorist 67,* 762-3 795 (May 1945); 823, 833, 836, 838 (June 1945). A review of some probable postwar uses for cotton, *e. g.,* in bagging for cotton bales, and in insulation for buildings, cold storage lockers, refrigerator cars and the like, claims that there will be a fine post-war market for cotton laminates to be used for making automobiles, airplanes, office-

equipment, buildings, and furniture. Light-weight, wind-resistant, water-repellant cotton fabrics will find extensive application in outer clothing of the types now made from wool. Plant breeding experiments have developed high-yielding varieties of cotton which have an average staple length of about one inch and which give strong, fine, etc., fibers. Mechanization of harvesting is expected to increase as more uniformly growing and maturing plants are bred.

FIBER IMPERFECTIONS. Cotton fiber imperfections and their probable relation to yarn quality. George J. Harrison and Edna E. Craig, U. S. Department of Agriculture. *Textile Research J. 15,* 247-256 (July 1945). An extended study of imperfections in cotton fibers obtained from the fiber laboratory of the U. S. Cotton Field Station, Shafter, Calif., for the years 1941-43. The common imperfections were studied to determine growth factors responsible and the importance of such imperfections in spun-cotton neppiness. Each microscopic examination was made on approximately 350 fibers combed and distributed over a 2 x 3 inch slide and covered with a second slide. A drop of 18% sodium hydroxide solution was applied at edge of slide. Magnification of 210x was used. Maturity counts were made at the fiber mid-point; deformity counts were expressed as average number of deformities per 100 fibers. Major deformities (causing breakage, entanglement, or neppiness in spinning) usually form an acute angle in the fiber axis. Minor deformities, consisting usually of enlargements of portion of the fiber, are not large enough to cause difficulties. Large diameter fibers (present in 50% of all neps examined), extreme tapering, and fiber roughness contribute to spinning difficulties in greater measure than their prevalence in cotton would indicate; also 60% of all neps contained seed-coat particles and 40% contained fuzz hairs. Fourteen representative photomicrographs illustrate the imperfections observed.

MECHANIZATION. Its Relation to Cotton Quality and Marketing. F. L. Gerdes. *The Cotton & Cotton Oil Press 46,* 5 (Aug. 11, 1945). In cultivation, check-row planting, cross-plowing and flame control of weeds and grass have largely eliminated hand labor. The mechanical picker is increasing in use, but also raising problems in cleaning cotton. The solution can be reached by three lines of attack: (a) develop varieties of cotton adapted to harvesting with mechanical pickers, (b) defoliate prior to harvesting and (c) develop more effective equipment at gins.

JUTE. Fibre production and softening. S. A. G. Caldwell. *Textile Mfg. 71,* 289, 291 (July

1945). Problems in the postwar jute industry are noted. Modernization of equipment is necessary to meet the narrowing gap between selling price and production costs. The author suggests controlled bacterial retting in place of the traditional retting and decortication to provide more uniform and cleaner fibers. Chemical pretreatment offers possibilities in extending the spinning range and improving the dyeing qualities. Fiber treated by one process (Brit. P. 542 247) is sold under the brand name "Celin" and may be processed in flax machinery. The purifying treatment consists in soaking for one hour at 90°F., immersing in a bath of 1% sodium carbonate and 0.5% surface-active agent for 15 minutes at 110°F., draining and washing; final treatment is in a bath of 2% "ammonal" (a batching composition) and 0.5% "soluble carbon tetrachloride" for 30 minutes. Treated jute fibers may be knitted. Notes are given on machinery for blending and softening jute fibers.

JUTE LUSTER. The luster of jute. C. R. Nodder. *Jute & Canvas Rev. 16,* No. 202, 7 (July 1945). To obtain good luster in a jute cloth, the following lines of approach are available: (a) choice of raw fiber that is naturally as lustrous as possible; (b) application of the smallest amount of oil in batching that will give satisfactory spinning; (c) spinning of the fiber on a line system instead of on a tow system, using a hackling machine and spread board, as for flax; (d) use of doubled yarns, with a doubling twist designed to bring the fiber-strands parallel to the axis of the ply-yarn (doubling turns per inch equal to singles t. p. i. divided by the square root of the number of plies); (e) removal of the oil from the yarn or cloth by solvent extraction or scouring; (f) removal of warp dressing when sized yarns have been used; (g) use of a twill weave that throws long floats on to the face of the cloth; (h) cropping and finishing of the cloth.

RAMIE. A new economic opportunity. Anon. *Monthly Review, Federal Reserve Bank of Atlanta 30,* No. 6, 57-62 (June 30, 1945). Properties and economic possibilities for ramie are reviewed. The war hastened the development of this industry which is predicted to have a permanent place in Southern economy. When cleaned, ramie is almost pure white in color, and its properties suggest a wide field of usefulness. It may be spun, woven, and knit on standard textile machinery. Fabrics can be made which resemble silks, fine cotton cloth, woolen goods, and linen. Several cost estimates for growing, harvesting, and processing are given. One estimate gives 10.1 cents total cost per pound of fiber ready for the manufacturer.

RAMIE. Ramie—miracle weed. S. R. Winters. *Mfr's Record 114,* No. 8, 42, 43, 78, 80 (August 1945). Experimental plantings of ramie in Florida now aggregate about 10,000 acres. Ramie is a warm-weather plant, growing in any kind of soil and under varying climatic conditions.

For maximum yield, a long growing season is necessary. Best growth is on an acid soil (pH 5-6) high in nitrogen and in areas which are well drained. Copper sulfate applications are necessary in quantities of 100 lbs. per acre. Ramie is a "perpetual" plant, with only one planting required, and under good conditions four crops per year may be obtained. Mature plants are 5 to 8 feet high; harvesting is done with conventional equipment. A wide range of postwar uses for the fiber is anticipated.

TYPHA FIBER. Swamp cat-tail joins commercial fibers. Peter S. Gilchrist, Charlotte Chemical Laboratories. *Textile Bull. 68,* No. 10, 21-2 (July 15, 1945). Fibers attached to the seeds in the swamp cat-tail (*Typha Latifolia* and *Typha Augustifolia*) are finding many industrial uses because of their "remarkable characteristics of buoyancy, thermal insulation, sound insulation and warmth". The fibers are less than one-half inch long and are "tubes composed of a number of compartments in which the air is trapped". The methods of working up the Typha, which were developed by C. F. Burgess, of Chicago, are described. There is a cross-section diagram of a cat-tail fiber.

ALABAMA COTTON, ESTIMATED ACREAGE, YIELD, AND PRODUCTION, 1928-43, BY COUNTIES. U. S. Dept. Agric. and Ala. Dept. Agric. & Industries, Div. Agric. Statistics, Montgomery, Ala., February 1945; 14 pp.; gratis.

COTTON VARIETIES IN THE HILL SECTION OF MISSISSIPPI. J. Fred O'Kelly. Miss. Agric. Exper. Sta. Bull. No. 411, December 1944. State College, Miss.; 8 pp.; gratis.

INFORMATION BASIC TO FARM ADJUSTMENTS IN THE HIGH PLAINS COTTON AREA OF TEXAS. A. C. Magee, C. A. Bonner, and B. H. Thibodeaux. Texas Agric. Exper. Sta. Bull. No. 652, July 1944. College Station, Texas; 81 pp.; gratis.

I, 2. Animal

CAMEL HAIR. Camel hair provides luxury textile fiber. A. C. Whitford. *Textile Age 9,* No. 7, 50, 52, 54, 56, 58 (July 1945). Camel hair from which fabrics are made is the underfur of the Bactrian camel. Grade 1 and 2 camel hair noils have maximum diameters of 14.9 and 21.9 microns, respectively. The coarser hair and grade 3 noils are useless for making clothing. The hairs and noils always possess a medulla and scales of the imbricate-serrate type, which are oriented more or less at right angles to the longitudinal axis, are roughly rectangular in shape, and are far apart, as is illustrated in photomicrographs of individual hairs and noils and of a cross section of camel hair fleece.

WOOL PRODUCTION. Origin of sheep. B. W. Allred. *Nat'l Wool Grower 35,* No. 8, 18, 19, 43-46 (Aug. 1945). Sheep thrive best in temper-

ate zones but adapt themselves to extremes of climate and can thrive on a great variety of forage. Sheep have been known to turn carnivorous, eating fish, other flesh, and fleece of flockmates, when faced with starvation. Sheep belong to the genus *ovis* of family *bovidae* and ancestors of present day species roamed the earth seven to fifteen million years ago. Distinguishing features of wild and tame sheep and coat characteristics are discussed briefly. Illustrated.

WOOL PRODUCTION. Montana Sheep Country. John Willard. *Nat'l Wool Grower 35,* No. 8, 16-17, 41, 42 (August 1945). Montana's normal sheep population is approximately three million. Fleece weights have increased from 7 lbs. (1890) to 9.2 lbs. (1929) with 9 lbs. as the minimum objective of growers. Most of the Montana sheep industry is east of Continental Divide.

I, 3. Artificial

FILAMENT EXTRUSION. Extrusion process for filaments. R. W. Moncrieff (to British Celanese). Brit. P. 565 981. An extrusion process for a fusible organic filament-forming composition consists of feeding the composition upward through a liquid that is inert to and of greater density than the composition, maintaining the liquid at a temperature high enough to melt the composition during its passage, and withdrawing the melted composition from the surface of the liquid and extruding it.

I, 3a. Cellulosic rayons

BEMBERG FABRICS. Some characteristics of Bemberg yarns and fabrics of interest to the dyer and finisher. W. L. Ashby. *J. Soc. Dyers & Colourists 61,* 167-71 (July 1945). Manufacture of Bemberg yarn and fabric, and processes for dyeing, printing, and finishing are described. Bemberg is a regenerated cellulose fiber, identifiable microscopically by a well-defined rounded cross-section and absence of striations when viewed longitudinally. With Shirlastain A Bemberg rayon is stained bright blue, viscose rayon pink, and cellulose acetate greenish yellow. Filament denier is 1.33. Suitable dyes and finishing agents are listed. Drying should be slow and maximum shrinkage should be allowed during the final drying. Excessive calendering should be avoided since it produces a thin, papery and glassy product.

RAYON PROCESSING. The rayon converter's viewpoint. James Fishwick. *Textile Mfr. 71,* 274 (July 1945). Problems of standardization, research and modernization in the rayon industry are discussed. The author contends that standardization should be based on market demand and that research on rayon should be conducted in a separate institute.

STAPLE FIBER. Cohesive staple fiber. American Viscose Corp. Brit. P. 565 841. A staple rayon fiber which has the desired coherence and the properties that go with coherence is made in apparatus containing a blunt cutter which subjects the material to compression along some of its length during cutting.

I, 3b. Protein fibers

FIBROIN. Rudolph S. Bley (to North Am. Rayon Corp.). USP Re 22 650/2 145 855, (June 12, 1945 & Feb. 7, 1939). Spinning solutions are made from proteins such as silk fibroin, wool, gelatin, alginic acid or casein by dispersing the protein in a quaternary benzylammonium base solution which can stand for long periods without losing its viscosity.

ARTIFICIAL WOOL. W. I. Taylor (to British Celanese). Brit. P. 566 504. "Filaments yielding an improved artificial wool are obtained by extruding a solution of an organic derivative of cellulose in a volatile solvent through a jet into a cell through which an evaporative current is passed. The solution has a viscosity not above 50, and as it enters the jet is at a temperature below the boiling-point of the solvent at atmospheric pressure. The viscosity is measured by the time in seconds for a steel ball of 7/32 in. dia. and weighing 0.7 grm. to fall through 3 in. of the solution at 25°C."

I, 4. Synthetic

LUSTER REDUCTION. Reducing luster of acetate yarn. H. C. Olphin & S. A. Gibson (to British Celanese). Brit. P. 565 815. A fiber-forming polymer containing a water-insoluble condensation product of an aldehyde with an amino triazine that is extruded into a setting zone is filtered off and milled into a solution of cellulose acetate in acetone, using 0.75 to 3% by weight on the cellulose acetate. The acetate yarn is then formed by dry-spinning to give a yarn resembling natural silk in luster. In one example the polymer was obtained by warming 63 parts of melamine powder for an hour at about 55°C. with about 225 parts of 40% formaldehyde, adding 6 parts of glacial acetic acid, pouring the mixture into 6000 parts of water, and holding the solution at 80-90° for an hour.

I, 4a. Nylon type

NYLON PLANT. Texas plant to boost nylon output. Anon. *Mfrs. Record 114,* No. 7, 55 (July 1945). Du Ponts are building a $20,000,000 plant, to be known as the Sabine River Works, near Orange, Texas, to make nylon salt. This location was chosen because the natural gas will yield the hydrogen needed for the synthesis of cyclohexane, from which adipic acid is made, and for the synthesis of ammonia, from which hexamethylene diamine is made. The nylon salt results from the reaction of adipic acid and hexamethylene diamine.

I, 5. Applications as fibers

DRYING FIBER. Fibre drying machine. F. B. Petrie (to Petrie & McNaught, Ltd.). Brit. P. 566 600. A machine for drying loose fibers as they travel on a conveyor has means for preventing the lifting of the material from the conveyor by air currents. An endless conveyor carries the wool fibers which are subjected to hot air. The material passes beneath a series of wires disposed parallel to the flow of the fiber and stretching between anchorages at the end where the fibers first pass beneath the wires, and pivoted bars curved upwards at the delivery end of the drying compartment. The wires are tensioned and a bar acts as an independent weight to prevent its wires being lifted by the material.

III. NONFIBROUS MATERIALS

LIGNIN DERIVATIVES. Etherification of lignins and ligninlike material. Rodger M. Dorland & Robert M. Boehm (to Masonite Corp.). USP 2 379 889, July 10. Etherified lignin suitable for molding compositions and similar products, which is stable, highly resistant to alkali and heat, and more resistant than the usual lignin preparation to the absorption of water, has only those hydroxyl groups of the original lignin which contribute to the solubility in 1% aqueous alkali etherified. It is made by mixing a lignin-containing material with an etherifying compound, an alkali, and water; and refluxing the lignin and etherifying compound until the insoluble etherified lignin precipitates.

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III, 1. Plastics, resins, rubber

PLASTICS CHEMISTRY. Understanding plastics chemistry. I-IV. George H. Brother, U. S. Soybean Industrial Products Lab., & Western Regional Research Lab., U. S. Dept. Agric. *Plastics 2,* No. 5, 84, 86, 88, 140 (May 1945); No. 6, 64, 66-8, 127-8 (June 1945); *3,* No. 1, 82, 84, 86, 150-54 (July 1945); No. 2, 66-8, 70, 118-23 (August 1945). Structural formulas of the repeating unit in the polymer and pictures of typical products make still clearer a concise discussion of the chemistry of plastics intended "to give those who are interested, but have little or no chemical background,

a useful picture . . . of the 16 or so principal plastics", which are grouped into cellulose derivatives, vinyl and vinyl-like polymers, polyesters, polyamides, and aldehyde condensation polymers.

III, 1a. Cellulose derivatives

STABILIZING OF NITROCELLULOSE. Donald R. Swan & John M. Calhoun (to Eastman Kodak Co.). USP 2 378 594, June 19. Nitrocellulose containing 11.4 to 12.2% nitrogen is kept from decolorizing by adding about 1% by weight of a hydrazide selected from the group consisting of oxamic hydrazide, gamma-phenoxy butyric hydrazide, cyanacetic hydrazide, palmitic hydrazide, semicarbazide, gluconic hydrazide, diphenyl semicarbazide, nicotinic hydrazide, citric trihydrazide, and acetone tricarballylic hydrazone.

CELLULOSE DERIVATIVES. Production of cellulose derivatives. Henry Dreyfus (to Celanese Corp. of America). USP 2 380 157, July 10. A process for treating cellulosic filaments, foils, etc., to make them less soluble in organic solvents and to improve the safe ironing temperature and melting point of materials made of organic acid esters and ethers of cellulose comprises reacting them with a 1 to 5% solution of an organic compound containing two C. NH. CN radicals. Cellulosic materials and shaped cellulosic materials can be impregnated with a 1 to 5% solution of the same sort of compound and then heated between 50 and 150°C.

CELLULOSE DERIVATIVE. Cellulose derivative preparation. George W. Seymour & Blanche B. White (to Camille Dreyfus). Can. P. 428 603, July 3. Carboxylates of cellulose esters, specifically cellulose acetate phthalate, are produced by esterifying cellulose with an anhydride of a lower aliphatic acid in a solvent for the cellulose ester produced, using 4 to 9% by weight of the cellulose originally present of sulfuric acid to serve as a catalyst for the esterification; ripening the cellulose ester at 50 to 60°C.; neutralizing the sulfuric acid with magnesium carbonate; and treating the ripened cellulose ester with an anhydride of an organic carboxylic acid at 60°C.

III, 1b. Polymer resins; natural resins

PLASTIC. Plasticized composition. Frank J. Soday (United Gas Improvement Co.). USP 2 378 447, June 19. Resins and plastics, plasticized with an aliphatic monobasic acid ester of an alkyl phenylethyl alcohol, are claimed, specifically polystyrene plasticized with up to 50% of its weight of an aliphatic monobasic acid ester of tolylethyl alcohol. The resin or plastic may be in the form of a molding composition, a molded object, an extruded object, or a lacquer.

III, 1c. Condensation polymer resins

WET-STRENGTH PAPER. A study of the

melamine resin process for producing wet-strength paper. C. G. Landes and C. S. Maxwell, American Cyanamid Co. *Paper Trade J. 121,* No. 6, TAPPI 51-60 (August 9, 1945). Additions of melamine resin solution to slush paper stock provides an improved method for making wet-strength paper. The process has been adopted for a wide variety of commercial papers including bag, map, tag, food-wrapping, toweling, tissue, photographic and blueprint stock, coating base stock, and others. This process, introduced in 1942, has had extensive practical tests. Dry tensile and dry bursting strengths are increased, sometimes to several hundred percent. Cheaper fibers may be utilized. Higher efficiency in sizing results. The article reviews the preparation of resin solutions, typical paper-mill results, operating variables and problems, laboratory evaluation, and studies in progress.

III, 1d. Rubbers and rubber derivatives

POLYTHENE STRUCTURE. The texture of polythene. C. W. Bunn and T. C. Alcock, Imperial Chemical Industries, Ltd. *Trans, Faraday Soc. 41,* 317-25 (June 1945). X-ray diffraction patterns of polythene taken at various temperatures up to the melting point (about 120°C.) are interpreted to mean that the proportions of crystalline and amorphous material change above 80°; that the *a* edge of the orthorhombic unit cell of the crystalline part increases in length from 7.42 A. at 18° to 7.65 A. at 100°, while the *b* axis remains almost constant at 4.93-4.95 A.; and that the polythene is composed of spherulites whose orientation can be determined from the optical properties of the drawn fibers. The mechanism of cold drawing, which is common to all long-chain polymers, is considered also. Three photographs.

RUBBER LATEX. The morphology of rubber latex particles. Ernst A. Hauser, Mass. Institute of Technology. *India Rubber World 112,* 461, 494 (July 1945). A review of the shape and structure of latex particles is given in view of recent studies with electron micrographs. The author criticizes the conclusion of Lucas, Hendricks, and others that particles are small spheres and that egg-shaped particles are the result of aggregation, since some latices normally have egg- or pear-shaped particles. The surface is composed of highly elastic substances. Errors introduced by mounting techniques for electron-microscope studies are noted. Hauser reiterates his previous conclusions: "Interior of the particle is a sol, the dispersion medium being rubber hydrocarbon, while its polymerized form is present as the dispersed phase in the particles. On the surface the sol has set to a gel, in which the polymerized phase is predominant". Knowledge of the structure is important in rubber and resin synthesis. Twelve references.

SYNTHETIC RUBBER. From 3600 to 1,000,000 tons per year in four years. Anon. *Chem. Industries 57,* 260-4, 357 (August 1945). This is a condensation of the report issued by the Rubber Reserve Co. covering the period 1940-1945. Details on the types of rubber, costs, plant construction, and cancelled projects are given.

III, 2. Adhesives; gums; starches

THERMOPLASTIC JOINTS. Method of making thermoplastic joints. Robert N. Steffens. USP 2 379 500, July 3, 1945. Thermoplastic materials are joined in a uniformly thick joint, *e. g.,* to make a belt, by clamping two portions with the end edges in the same plane and protruding toward each other, heating the protruding portions to make the end edges plastic, moving the plastic edges into contact to cause the edges to fuze, and shearing off any material that flows above or below the upper and lower surface of the material at the joint.

DECORATED FABRIC. H. Freiburg & S. Freiburg. Brit. P. 565 711. Fabrics are decorated by using a synthetic resin composition to secure shaped materials to them.

LAMINATED SHEETS. Wrinkle-free laminated sheets. A. E. King (to British Celophane, Ltd.). Brit. P. 566 239. Laminated sheet material is manufactured by securing together by an aqueous adhesive a water-unsaturated sheet between two water-saturated sheets of non-fibrous material, that is water-sensitive in the dry state. The finished material is free from distortions such as buckling, curling, wrinkling, etc.

ADHESIVE FOR FLOCK PRINTING. C. L. Mantell. Brit. P. 566 656. An adhesive which is permanently flexible and stable for use in a flock printing process comprises a solution containing an alkyd resin formed by modifying a polyhydric alcohol dibasic carboxylic acid resin with at least one fatty acid derived from a non-drying or semi-drying oil. The composition is applied in an intermediate stage of polymerization and is made insoluble and infusible by the application of heat.

BONDING RUBBER. Rubber bonding medium. Corydon Melvin Grafton (to Dominion Rubber Co. Ltd.). Can. P. 428 546, July 3. A method of, and the product formed by, bonding a layer of rubber to another material, consisting in applying a layer of rubber chloride, 1,3-dichloro-5,5-dimethyl hydantoin, and either a chlorinated diphenyl plasticizer or triphenyl stibine and carbon black. In one claim from which the plasticizer and carbon black are omitted, the surfaces to be joined are stated to require being pressed together and vulcanized.

III, 3. Surface-active compounds, textile assistants

DETERGENTS. The future of synthetic detergents. Aaron E. Carpenter, E. F. Houghton & Co. *Textile Bull. 68,* No. 11, 28 (August 1, 1945). Military uses for surface-active agents have taken the total production and the demand has not been completely met. Increased interest in these products suggests large postwar expansion.

IV. FIBER TO YARN

CALCULATIONS FOR TEXTILE OPERATIONS. Shortening calculations with constants. John J. Buckley. *Cotton (U. S.) 109,* No. 6, 113-14 (June 1945). Figures used repeatedly in routine calculations can be reduced to constants, whose use can save up to 50% of the time required for such computations, as is illustrated by several examples. Tables list constants for figuring: *loom production* at efficiencies ranging from 80-100% at speeds ranging from 145 to 195 picks per minute; *spinning* and *twister production* at efficiencies ranging from 70 to 100% on 1-, 1-1/16, 1-¼, 1-⅜-, and 2-in. rolls; and *yards per pound* of fabrics from the weight per square inch in grains.

IV, 1. Preparation for spinning

COMBER. The Cramerton comber "has something". David Clark. *Textile Bull. 68,* No. 9, 20, 22 (July 1, 1945). A comber designed by the engineering department of Cramerton Mills, Inc., North Carolina, is photographed and described. It embodies an automatic lap change mechanism, a double coiler can holder with a device for shifting the coiler head from a full to an empty can, and a pneumatic system for taking the comber noils to the waste house. It has only one-fourth as many parts as ordinary combers and only 100 spots requiring lubrication, and they require visiting but three or four times a year. One operator probably can tend 15 to 18 Cramerton combers (50% more than one operator usually can handle) and each comber puts out about twice as much as conventional machines.

ROVING MACHINERY. Long draft roving equipment. I. M. Shopman. *Textile Bull. 68,* No. 10, 28, 30 (July 15, 1945). The care required in setting the rolls and in lubricating and cleaning the machinery is explained in a short account of the principles and advantages of long draft roving equipment.

SLIVER FORMATION. The Noble comb: drawing-off. H. D. *Textile Recorder 63,* No. 748, 41-2, 45 (July 1945). In a description of the drawing-off of fibers from the pins of the circles of Nobel combs, emphasis is put on the care for and adjustment of the leathers, and the effects on the sliver formed and on the wear of the leathers of different speeds of rotation and different positions relative to the circles of the rollers are illustrated.

WOOL TOPS. Texas wool tops plant first in the South. Anon. *Mfrs. Record 114,* No. 7, 52-3, 78, 80 (July 1945). A plant owned by Robert E. Pent at New Braunfels, Texas, is the first wool manufacturing plant to be built in the South. By methods described briefly and illustrated by six pictures the fleeces are converted to an endless sliver, which is wound without twisting into balls, that are then ready for the spinners.

NIPPER-FEED MECHANISM. Frank L. Crockett (to Whitin Machine Works). USP 2 378 465, June 19. A nipper-feed mechanism that can be adjusted readily from the front of the comber has a swinging nipper frame carrying a nipper-knife, a cushion-plate, a lap-feed roller, and bracket housings adjustably mounted on the side plates. Springs mounted on the brackets thrust horizontally on the arms and press the roller against the lap. The springs are regulated by horizontal thumb-screws with heads at the ends of the nipper-knife.

STAPLE FIBER. Opening of staple fibre clumps. American Viscose Corp. Brit. P. 565 846. Clumps of staple fiber are opened during manufacture by throwing the clump in free flight against a surface composed of corrugations, grooves, etc. The pitch of the indentations is less than the effective dimension of the clumps parallel to them.

CARDING MACHINERY. A safety device for cards. W. Gibson. Brit. P. 565 990. A safety device for carding engines has a common control associated with a moving part of the machine, so that the cover, door and gate-locking means cannot be opened until the machine is stopped.

IV, 2. Spinning, doubling, twisting, winding

SPINNING. Mixtures of Staple Fiber and Indian Cottons, Spinning Test Reports. *I. C. C. C. Technological Bull., Series A, No. 59,* through *Indian Textile J. 55,* No. 656, 569-570 (May 1945). Spinning tests which have been completed recently in India are of considerable interest to all who have to do with blends of cotton and staple rayon. Among the more important conclusions of this test are the following: (1) *Ends down:* The addition of staple rayon to the blend gives a reduction in the number of ends down at the spinning frame. (2) *Neppiness:* Although the staple rayon yarns themselves were remarkably free from neps, the blending of staple rayon with cotton did not decrease the neppiness of the cotton yarns. (3) *Evenness:* The addition of staple fiber to cotton tends to improve the yarn evenness. (4) *Strength:* The addition of 10-20% staple rayon improves the yarn strength, on both the skein test and the single end test, at moderate to low twist multipliers (3.0-3.5). At higher twist multipliers (4.0-4.5), or with higher proportions of staple rayon, the strength is reduced. The magnitude of this effect depends upon the cotton and the yarn number. The wet strength of the blended yarns decreases as the proportion of staple rayon is increased. With a twist multiplier of 3.5 the yarns with 15 and 20% staple rayon have equal wet and dry strength and this strength is equal to the dry strength of the all-cotton yarns. (5) *Ballistic work of rupture:* The work of rupture is much greater for the staple rayon yarns than for the cotton yarns because of the greater elongation of the staple rayon fiber. The optimum twist multiplier is higher than the optimum for maximum strength. The effect of increasing proportions of staple rayon depends on the twist, the yarn number, and the cotton used. (6) *Effect of spinning draft.* No significant differences could be obtained with drafts of 6, 8, 9. All of the

tests were made on three Indian cottons—Jayawant, Cambodia Co. 2, Surat 1027 A. L. F. and Courtauld's Fibro. The mean fiber lengths were 0.92, 0.84, 0.94 and 1 inch. The denier of the fibers were 1.83, 1.56, 1.88 and 1.5, the fineness of the cottons being 5.16, 4.40, and 5.30 micrograms per inch respectively. The fibers were spun pure and in 10, 15, 20, and 30% blends of Fibro. Yarn numbers were 20's and 30's. The staple rayon yarns were spun with 2.5, 3.0, and 3.5 twist multipliers while the cottons and the 10 and 20% blends were spun with twist multipliers 3.0, 3.5, and 4.0. The 15 and 30% blends and the cottons were also spun with a twist multiplier 3.5 and 6. 8, and 9 spinning drafts.

RINGS AND TRAVELLERS. Hard-wearing rings and travellers. The Clark Thread Co. Brit. P. 565 796. Rings for spinning and doubling frames, which resist corrosion, which require less lubrication and have a longer life than steel rings, and which do not contaminate the yarn, consist of a metal core and a wearing surface of poly-hexamethylene adipamide.

SPINDLE MOUNTING. Adjustable spindle mounting. British Celanese, Ltd. Brit. P. 566 590. A spindle assembly mounting for a winding or twisting machine has jaws for clamping to the frame of the machine and a slideway extending from the jaws. A support for the assembly slides on the slideway and is adjustable.

SELF-OILING ROLLERS. G. A. Ryder (to T. Ryder & Son, Ltd.). Brit. P. 566 708. Loose boss top rollers of mules, ring frames, etc., which require a minimum of attention in service, are made of cast-iron, and have inserted under pressure self-oiling bronze bushes which are narrower than the bosses. The spindle for each pair of bosses has flanges which enter the part of each boss beyond the self-oiling bush but do not touch the interior of the boss. The spindle, of case-hardened steel, has cylindrical parts which form journal bearings for each boss.

SPINNING TUBE ADAPTER. Spinning tube locking adapter. George B. Markle, Jr. (to Freeland Spool and Bobbin Corp.). Can. P. 428 554, July 3. A spindle actuated tube locking adapter comprises a tubular body of two sections which telescope within each other, one section of which has slots and the other either transverse openings or holes; resilient gripping members are mounted in the slots and the openings, and are forced outward by a spindle into engagement with the tube carried by the adapter.

SPINDLE BRAKE. Emmett E. Britts, Jr. (to Camille Dreyfus). Can. P. 428 604, July 3. A portable brake for stopping the rotation of a spindle assembly provided with an oil well and for swinging the spindle on the arc of its swing step comprises a handle, a lever arm extending at an angle of less than 90° from the handle, a brake shoe at the free end of the lever arm, and a pin at the junction of the handle and the lever arm. The pin is adapted for insertion in the oil well of the spindle swing step.

IV, 2b. Wool; worsted

SPINNING WOOL. Proper care of wick rings improves worsted spinning. Anon. *Traveler* No. 112, 10-13 (July 1945). Regular inspection for wear, removing lint, oiling parts, and flushing the wicks and felts "will pay off in a better spin, longer traveler life, consistently large doffs, and fewer 'down' spindles", according to this article pointing out "the lines along which a system of care may be organized."

SPINNING WORSTED. Worsted spinning employees' handbook. Anon. *Can. Textile J. 62,* No. 15, 42, 52 (July 27, 1945). Rules issued to the employees of Spinners, Ltd., Huntingdon, Quebec, for tending the machines used in spinning worsted are printed.

IV, 2d. Rayon

RAYON-PROCESS MACHINERY. Brit. Rayon Federation. Report of the U. S. A. Delegation. *Textile Weekly 36,* 116-8 (July 27, 1945). A British delegation visited the United States (Feb.-April, 1945) at the invitation of machinery manufacturers to investigate developments in machinery for rayon staple spinning and yarn processing. The detailed report of this committee, submitted to the Federation, made the following points: (a) "In spinning there is nothing available or in immediate prospect which is fundamentally new"; (b) "There is a larger proportion of new machinery at work in the USA"; (c) "It would appear that the evolution of a new sliver-making technique is no nearer solution in the USA"; (d) In mill practice "the operation of continuous shift working gives the mills in the USA . . . advantages"; (e) For standard of production "executives and technicians in an American mill can judge quality and regularity of yarn for any given fabric . . . [and are not required] to produce a yarn of greater quality than necessary"; (f) "USA textile machinery manufactures are showing more initiative . . . [with] machinery in advance of our mills, being nearly all modern, high-speed." The report concludes that separation of spinning and weaving operations in the United Kingdom is a disadvantage.

SPUN-RAYON YARNS. New concepts for spun rayon yarns. Harold Ashton, Courtaulds, Ltd. *Textile Age 9,* No. 7, 60, 62-3 (July 1945). Just as the methods of making yarn from cotton, wool, flax, and silk differ because of the different characters of the fibers, so methods of making spun rayon yarn should be developed to take advantage of possible combinations of length and fineness, strength and elasticity of the rayon fiber. (Until now rayon has been spun on machinery evolved for handling other fibers.) Design of spinning machinery to process fibres from one to four inches long and from one to eight deniers in diameter will be easy compared with the design of adequate equipment to disperse and condense the fiber and to make the sliver.

RAYON SPINNING. Guide funnel for rayon

spinning. American Viscose Corp. Brit. P. 565 679. A bracket supporting a guide funnel of a rayon spinning machine for directing and traversing a thread being collected in a cake comprises two separate elements. The top element supports the upper portion of the funnel which is capable of sliding in the lower element. Means are provided for connecting the elements and to constrain their separation to a straight line. The funnel is lifted by the upper element and slides in the lower one, thereby moving a straight line.

COVERING THREAD. Covering apparatus for rayon cakes. American Viscose Corp. Brit. P. 565 702. Apparatus for applying a tubular cover to a thread package comprises a main support holding a package-support having an outer portion against which the end of the package bears. Holders project concentrically beyond an inner portion of the package-support to support the cover. A sleeve into which the support can pass is covered by a portion of the cover; the mounting of the support and the sleeve permits relative motion between them in an axial direction from a position in which the support is near the open end of the sleeve to a position where it is well within the latter.

COVERING RAYON CAKES. Rayon cake covering apparatus. American Viscose Corp. Brit. P. 566 382. Apparatus for preparing rayon cakes for liquid treatment comprises package engaging and supporting means, a device for stripping the outer layers of yarn from the package, and apparatus for applying protective covering to the package.

COVERING RAYON CAKES. Readying apparatus for rayon cakes. American Viscose Corp. Brit. P. 566 410. In apparatus for stripping the outer layers of yarn from a rayon cake before covering it for a liquid treatment, a member supports the package on one of its ends and fixed means withdraw the yarn around a thread guide. The thread guide and the package support can be moved simultaneously in the same direction in order to strip the required layers.

IV. 2e. Winding

SPINDLE-WINDING MACHINE. The automatic winding of warping cones and cheeses. "Benlow". *Textile Recorder 63,* No. 748, 46-8 (July 1945). Three excellent photographs and a cross-section diagram are used to explain the working of the Abbott travelling spindle winding machine, Model U, developed in the United States, which should have wide application in England. A detailed comparison of the operations required of the worker on the ordinary and on the U model spindle winding machine show the economies in labor and the increases in production that could be expected to follow the introduction of the U model.

BUILDER MOTION. Albert E. Winslow (to Farrel-Birmingham Co., Inc.). USP 2 380 354, July 10. In a builder motion on a spinning frame for making a yarn package in which the yarn is wound so that one convolution of yarn is not directly on top of another (this permits sluffing of the yarn), the builder motion has a rocking arm mounted on it, a cam follower is carried by the arm, driving means including a cam engaging the follower for rocking the arm are provided, a guideway is carried by the arm wherein a slide moves, and with an auxiliary cam follower carried by the slide; there are means for connecting this auxiliary cam follower to a yarn guide, a second cam is carried by the arm for engaging the auxiliary follower, and means operated from the driving mechanism for the first cam rotates the second cam.

BALL-WINDING MACHINE. L. Towsk. Brit. P. 565 622. A ball-winding machine on which the completed package permits the yarn to be withdrawn from the interior has an electric motor on its base. The motor drives a vertical spindle holding a cone and carrying a pulley over which passes an endless belt that passes under jockey pulleys, over guide pulleys and over the wheel on a hollow spindle. The lower end of the hollow spindle has an off-set winding arm and a counterbalance, the arm being rotated around the mandrel. This hollow spindle guides yarn from a skein holder to the winding arm. The jockey pulleys provide means for varying the relative speeds of the arm and the mandrel by allowing slip in the driving belt—this determines the pitch of the yarn being wound on. The mandrel has a slit in which the end of the yarn is anchored so that later it can be unwound from the interior of the ball.

SILK BEAMS. Flange adjustment device on silk beams. F. S. Hodgson. Brit. P. 565 733. Silk yarn beams with means for securing the beam flanges in position to permit a fine variation in the distance between the flanges are claimed. A hollow metal barrel has diametrically opposed holes near both ends, and two rigid flanges have an externally threaded collar which is a sliding fit upon the barrel. The collar threads into an internally threaded divided portion of a collar having a solid portion with aligned holes through them from opposite sides. Means are provided for closing the divided portion of the external collar upon the internal collar, and a pin passes through the undivided portion of the external collar and the barrel from side to side, to secure the collar and flange to the barrel.

IV, 3. Processing and finishing

DRAFTING EQUIPMENT. Worsted forming fibre drafting apparatus. John St. Angelo (to Collins & Aikman Corp.). Can. P. 428 536, July 3. In a method of high drafting twisted textile stock containing wool or mohair fibers on a drafting device having a set of back rollers and a set of front rollers which determine a draft stage, a twisted stock end containing fibers the longest of which are 3.25 to 12 inches is provided, the stock end is fed into the back rollers of the drafting device and is weighted at a number of points within the draft stage with a maximum of 3 to 13 ounces per end, simultaneously with the feeding, and the stock end is supported at the

weighted points by a moving support travelling in the direction in which the stock moves and having a surface speed at least 1.5 times that of the back rollers, so that the stock is drawn to a draft-number at least 2-3 and not more than 3-9 times the length of the longest fibers in the stock, depending on the initial length of the longest fiber.

IV, 4. Products (thread, yarn, cord, etc.)

FELTING. Observations on the theory of felting. S. A. Shorter, Shirley Institute. *J. Soc. Dyers & Colourists 61,* 172-3 (July 1945); and A. J. P. Martin. *Ibid 61,* 173-4 (July 1945) [Correspondence] The author of the first communication [S] replies to criticism of his theory of 1923. Confusion with the theory of Arnold is pointed out. Martin in reply to Shorter extends the exposition of his theory with diagrams of the "loop-locking" mechanism proposed.

GREX SYSTEM. An international yarn counts system. F. P. Slater, H. A. Elkin, and H. L. Parsons. *Fibres, Fabrics & Cordage 12,* No. 7, 287, 289 (July 1945). See also *Textile Weekly 35,* 1057, 1060 (June 8, 1945). At a conference held in Manchester, England, under the auspices of the Textile Institute representatives of almost every British textile trade association voted for the Grex system as an international standard method of numbering yarns, but "it was understood that there would not be any request for an actual discontinuation of any system of yarn numbering"—the Grex system will be the common alternative system until its universal use and its inherent advantages bring it into predominant use. Slater explained the Grex system, Elkin the cordage count system, and Parsons the common systems of count measurement for flax, hemp, linen, tow, jute, etc.

YARN. Yarn count on a diameter basis. F. M. King. *Textile Mfg. 71,* 281-2 (July 1945). A universal system for yarn count is considered highly desirable. Such a system must meet several requirements: (a) cover a wide range of yarn thicknesses, (b) use simple terms, and (c) provide an actual measure of the thread diameter. Tentative suggestions are given.

TIRE CORD. The Structure of Cords for Automobile Tires. A. M. Kochnev. *Kauchuk i Rezina 2,* 39-43 (1940). Abs. from *India Rubber World 112,* 450 (July 1945). Tire factories in the U. S. S. R. use three types of cord: 37/5/3, 28/4/3, and 22/3/3. These cords are made from Soviet cotton raised from U. S. seed. The nature of the twist has a direct bearing on the quality of cord. For testing, the cords were made with a 18/9 twist per inch. Of the above cords, the strongest was 28/4/3. Its thickness is 0.038-inch; breaking strength 18.72-18.95 pounds; elongation on breaking 28.0-29.5%; moisture content 7.78%. Tires were made using the above three grades of cord, and as controls, tires made with cord 22/3/3, but having 16/8 twists per inch were used. The tires were tested on a testing machine and on different kinds of road: cobblestones, paved roads, country roads. The results are tabulated. Tires made with 28/4/3 cord gave the most satisfactory results. On a testing machine the average mileage of these tires until failure was 2,741 miles; on paved roads it was 21,774 miles, and on cobblestone roads, 10,563 miles.

TIRE CORDS. Comparison of some elastic properties of tire cords. Helmut Wakeham, Edith Honold, & Evald L. Skau, Southern Regional Research Laboratory. *J. Applied Physics 16,* 388-401 (July 1945). The elastic behavior of nylon and rayon, stretched and unstretched, tire cords is compared with respect to rate of elongation during measurement of stress-strain curves and elongation under static loads at various temperatures between 77° and 392° F. (25° and 200° C.). Elongations under the influence of cyclic loads are shown for cotton and rayon cords, and an apparatus for determining mechanical hysteresis of tire cords during cylic loading is described. Temperature and moisture content of the cords have considerable effect upon their elastic properties and the moisture content of cords in actual use may differ substantially from that observed under experimental laboratory conditions. The elastic behavior of a tire cord is the net result of many factors, some of which are difficult to investigate; elongation of a given cord depends also upon the element of time and the complete history of the tire cord. Results of these tests have given considerable information concerning the possible behavior of tire cords in tires and should aid in setting up more complete criteria of the essential elastic requirements of a better tire cord.

IV, 5a. Coated or impregnated products

FILTER. Merrill G. Hastings & Harry J. Hayward (to Merrill G. & Emita E. Hastings, & Robert L. Fielding). USP Re 22 651/2 368 216, (Jan. 30, 1945; June 12, 1945) A filter tube is made by winding a fibrous strand on a revolving support to form layers of spaced crossed convolutions with diamond-shaped passages between, and napping the strands with a device which moves parallel to the filter axis but reverses its direction at intervals.

V. YARN TO FABRIC

V, 1. Preparation

YARN PREPARATION. Anon. *Textile Weekly 35,* 876, 878, 880 (May 11, 1945); 937-8 (May 18, 1945); 1032, 1034 (June 1, 1945). Illustrated description of the construction and operation of automatic spoolers and super-speed warpers on the Barber-Colman system.

V, 3a. Looms

LINEN LOOM. A new linen loom. Barnsley's contribution to the linen industry. Wilson and Longbottom, Ltd. *Textile Weekly 36,* 132, 134, 136 (July 20, 1945); 184, 186, 188 (July 27, 1945). Meeting modern needs for weaving linen. Anon.

Textile Recorder 63, No. 748, 43-5 (July 1945). A description is given of the chief features of two linen looms built by Wilson and Longbottom, Ltd., the one for plain weaving and the other for twills.

LOOM-FIXER'S TOOLS. Anon. *Textile World 95,* No. 1, 74-5 (Jan. 1945); No. 2, 122-3 (Feb. 1945). Illustrated description of measuring tools, wrenches, gages, and other special tools with their uses in loom fixing.

V, 3b. Loom parts

SHUTTLE SPEED. Control of shuttle speed. A. Sumner. *Textile Mfr. 71,* 269-70 (July 1945). An analysis of shuttle-operation difficulties and suggested remedies is given. The discussion includes: mechanism defects, cloth density, weave, spare-reed space, dwell of tappet, size of package, and length of shuttle box.

LOOM DRIVE. Harness cord-sheave mechanism for looms. Oscar V. Payne (to Crompton & Knowles Loom Works). USP 2 379 743, July 3, 1945. To mitigate the wear on the sheave hubs of the conventional harness cord-sheave mechanism of a loom, two sets of sheaves, each having its own supporting shaft and each sheave having a hub approximately twice the width of the sheave, are provided. The two parallel axes are spaced less than the diameter of a sheave apart and the hubs on the sheaves of each set space the sheaves laterally in such a manner that the sheaves of each set enter spaces between the sheaves of the other set.

BEAT-UP MECHANISM OF LOOMS. D. W. Shimwell. Brit. P. 565 635. A beat-up mechanism for a loom which allows the loom cycle to be shortened without increasing the shuttle speed comprises slides reciprocated on bars by two connecting rods connected to the crank pin on a crank arm and crank shaft. The connecting rod has a fulcrum pin eccentric to the crank pin and on an arm there is journalled a rod which is coupled to an arm that is given an angular movement at the ends of the traverses of the slide to raise the beat-up comb out of the warp shed when beat-up is completed and to reintroduce it near the reed.

SHUTTLE. Non-kissable shuttle. T. Dawson & J. Dawson. Brit. P. 566 802. A non-kissable shuttle threaded by means of a hook has a vertical slit extending nearly to the shuttle tip. Means are provided to prevent the yarn from ballooning up the slit and to prevent the yarn from being sucked by the mouth of the weaver through the eye.

V, 3c. Control devices; stop motions; bobbin selectors

PICKING MECHANISM. Wallace Hamilton (to Draper Corp.). USP 2 380 170, July 10. The jumping of the picker stick in a fly shuttle loom, particularly at the end of its return movement, is prevented by a spring or resilient stop member, which is fixed to the parallel and which engages the parallel shoe when the parallel shoe lifts at the end

of its return movement. The spring is stiff enough to resist the jumping of the picker stick and shoe, but does not interfere with the normal operation of the picking mechanism.

LOOM STOP-MOTION. Loose reed stop-motion for multiple box looms. N. Benson Holmes (to Goldrich & Co., Ltd.). Brit. P. 566 035. A loose reed stop-motion for circular or multiple shuttle looms has a loose reed pivoted in a groove in the sley cap, its lower rib being pressed against the shuttle race by a "thrasher" fastened to the arms which are fixed to the reed case rod. The rod is partly rotated when the sley moves forward on a trapped shuttle, and on this rod is mounted a lever with an adjustable nose piece which moves forward and backward as the sley travels from "back center" to "front center" just clear of an upright pivoted lever having a shaped nose piece. The lever has a connecting rod coupled to a brake that acts on a brake wheel on the main shaft of the loom, so that at the proper time the brake will stop the loom. A spring-pressed adjustable stop positions the lever to adjust the brake. A slidable rod, pushed end-on by the lever at the required time, is connected to the setting-on handle so that when the motion arrests the loom, the setting-on handle shifts the belt to the loose pulley.

V, 3d. Processes

JACQUARD WEAVING. The Philadelphia section tie and Jacquard weaving. Osbert Hughes. *Cotton (U. S.) 109,* No. 6, 115-18 (June 1945). The Philadelphia section, or two-scale, tie is used in Jacquard weaving to increase the sley, widen the repeat of pattern, and simplify the preparation of point-paper designs and cutting cards over what can be obtained with the ordinary straight tie on the Jacquard. The method of making the tie and some of the effects that can be obtained in tapestry, matelasse, and satin damask are described and illustrated by diagrams and photographs. If desired, section tie cast-outs can be made in the manner outlined briefly.

LOOP-PLUSH FABRIC. Production of loop-plush fabric. Max Nebel (vested in the Alien Property Custodian). USP 2 379 852, July 3. A loop-plush fabric that contains no open spaces between the sinker wales worked with plush loops is made from two ground threads and two plush threads by: working one of the ground threads with one of the plush threads at alternate wales to form a partial course, working together the other ground and plush threads at the intervening wales to complete the course, and sinking in the respective plush threads of both of the partial courses during their working to form longer loops than in the associated ground thread, so that a ground thread loop and an associated plush thread loop will be floated over each wale in the course. Since each of the two plush threads of a course is worked only at every second needle into plush loops, the stressing of the plush thread is equal to that of the ground thread, which means that any thread employed for the ground

fabric may serve also as plush thread, and the plush loops may be much longer that at present.

LOOM MECHANISM. Simultaneous weaving and design recording machine. T. Reich, Brit. P. 566 733. An electromagnetically controlled loom mechanism has an associated printing or punching mechanism whereby a cloth pattern can be woven and a draft of the pattern effected on paper at the same time. The electromagnetic control enables any predetermined number of shafts to remain raised for each weft pick, and as each pick is selected, a printing mechanism records the shaft selection by means of dots across a sheet of paper. Operating synchronously with the printing device is a punching apparatus whereby the design is punched upon a paper tape, any one row of holes for each pick. The tape when run through, a control box automatically controls the rise and fall of the shafts by operating electromagnetic catches and so causes the loom to weave the pattern.

V, 3e. Defects

LOOMS. Loom craft. W. Middlebrook. *Textile Mfg. 71,* 292-4 (July 1945). Skill and practice are needed to understand the causes and remedies for broken picks in weaving. The author discusses the "minor" troubles and suggests corrective measures.

V, 4. Knitting

ARMY HOSIERY. L. M. Richardson. *Southern Knitter 9,* No. 6, 25-6 (June 1945). The three types of army hosiery are mercerized cotton, light weight cottonwool, and cushion wool-cotton. Problems involved in processing and dyeing these types of hosiery are discussed.

KNIT CABLE COVERS. Another branch of knit goods. Julian W. Hughes. *Cotton (U. S.) 109,* No. 6, 165-6, 168 (June 1945). The knitting of covers around rubber hose and wire cable is described with the aid of three photographs. The needles and knitting cams are, fundamentally, no different from those used on hosiery machines, but their position is different because the cover must be knit close to the core.

KNITTING MACHINES. The Komet and Links and Links knitting machines. K. O. Metz. *Cotton (U. S.) 109,* No. 6, 171-2, 174 (June 1945). The repairs likely to be required on Komet and Links and Links knitting machines as they become worn are explained with the help of diagrams of the upper bed plate assembly and of the verge assembly of the Links and Links machine.

KNITTING METHOD. Method of knitting. Charles L. Page. USP 2 378 947, June 26. A method of knitting with independently-operated standard needles in conjunction with independently-operated sinkers having back walls, drawing platforms cut down from standard level and further having inclined walls connecting the low drawing platforms with resting platforms at the standard height

of the normal drawing platform, consists in drawing a shortened stitch with a needle on the low drawing platform of a sinker, the length of the stitch being the full length of stitch wanted, moving the sinker forward to take up the slack due to the rise of the needle, moving the sinker forward further to cause the stitch to rest on the high platform and then setting the stitch on the needle by moving the back wall of the sinker against it, each needle progressively drawing a stitch over each adjacent sinker.

KNITTING MACHINE. Wildt and Co., Ltd. Australian P. 119 208. A yarn-placing and cutting device for attachment to "circular knitting machines furnished with independent needles" consists of a mechanism to engage and introduce to the needles the portion of the ingoing yarn extending between the feeding end of its guide and the trapping and severing blades, in order that the yarn may be cut as close as practicable to the needle which receives it. Longer abstract and diagram in *Textile J. of Australia 20,* 124 (May 21, 1945.)

HOSIERY MANUFACTURE. Toe-fitting in fully fashioned hosiery. C. A. Kaufman. Brit. P. 565 625. The tip of a fully fashioned stocking blank has a portion that is tapered more than usual, which can be closed by a looping operation, to give a closer fit to the wearer's toes.

KNITTING MECHANISM. Knitting: latch-opening mechanism. Mellor Bromley & Co., Ltd. Brit. P. 565 704. An independent latch needle knitting machine has a latch-opening means of a simple and compact form for action on closed latches while the needles are still in the pressing-off plane. A portion of this latch-opening member is interposed between the hooks and the closed latches of needles in a knocking-over plane and opposes the needles transversely to their lengths. Relative movement between the needles and the opening member in a course-wise direction causes closed latches to be opened after knocking-over has occurred.

KNITTING MACHINE. Knitting machine-patterning mechanism. Mellor Bromley & Co., Ltd. Brit. P. 565 722. The patterning mechanism for a knitting machine consists of selecting cams bent to various degrees. When they are assembled in a bank, the bent portions are convergent, and the spacing of the operative ends of the cams corresponds with the spacing of the butt positions. The portions of the cams that are acted on directly by the projections of a rotating unit are spaced wider apart to enable the spacing of the projections to be increased correspondingly.

KNITTED FABRIC. Uniform-stretch knitted fabric. Daybrook Fabrics, Ltd. Brit. P. 565 754. Warp knitted fabric which has the same degree of stretch in all directions consists of two warps utilizing one needle bar and two guide bars. Each guide bar is threaded to every second needle, and the two bars supply alternate needles. One guide bar is moved so that each guide wraps its thread in alternate courses, round one and then round the other of two

successive needles, is then displaced to wrap around one of these needles and an adjacent needle, and is then returned to be ready to repeat this cycle. Simultaneously the other guide bar is moved so that each guide wraps its thread in alternate courses round one and then round the other of the needles in two successive pairs that are not supplied by the first guide bar in these courses, is then displaced so that the adjacent needle is included in the two successive pairs, and is then returned to be ready to repeat this cycle.

KNITTING NEEDLE. Hook construction of tubular knitting needle. G. L. Bolden & R. Peel (to F. N. F., Ltd.). Brit. P. 565 755. In a knitting needle with a tubular shank having one end swaged to form a hook which is offset to one side of the shank, an opening is formed in the other side for the passage of a tongue which alternately overlaps the hook and is withdrawn into the shank.

KNITTING. Knitting: automatic welt turning. H. W. Start & E. Start (to G. Blackburn & Sons, Ltd.). Brit. P. 566 015. A welt-turning mechanism for a straight-bar knitting machine consists of angular adjustable arms having guides on their inner faces to engage with the ends of the welt wires and be turned so that the ends of the arms project above the work to place the ends of the welt wires in engagement with the guides. The guides are in the form of a groove which is long enough to direct the wire below the welt hooks when the main take-up mechanism is brought into operation.

KNITTING. Knitting: widening method to avoid runs. W. Oakley (to W. Cotton, Ltd.). Brit. P. 566 496. A method of widening on a straight-bar knitting machine without loop transference, comprises employing two yarn carriers, each feeding a yarn to the needles. Their draw is controlled so that one traverses two needles beyond the other, and is increased at each edge to be widened, by two needles, at intervals of not less than four courses. The use of two threads results in a safe selvage and obviates the formation of runs.

NYLON HOSIERY. Nylon hosiery with improved stretch. Imperial Chemical Industries, Ltd. Brit. P. 566 507. Nylon hosiery of improved stretchability is produced by knitting the hose with a nylon yarn and a "transitory yarn", permanently setting the hosiery, and then dissolving the transitory yarn by a solvent that does not affect nylon yarn. The nylon yarn is wrapped about a transitory yarn by twisting the two together with a higher tension on the transitory yarn than on the nylon yarn. The fabric is set with steam before removal of the transitory yarn.

HOSIERY. Fully-fashioned hose: elimination of linking process. H. E. Woodcock (to G. Woodcock & Sons, Ltd.). Brit. P. 566 568. In a method for providing a blank, complete with heel tabs, on a straight-bar machine, the inner edges of the heel tabs being connected to the initial courses of the foot sole during manufacture, apparatus is provided

for temporarily suspending knitting on a central group of instep needles while the needles continue to hold their loops and the knitting of the heel tabs proceeds on needles beyond the ends of the group of inactive needles. The transfer points are operated periodically to transfer progressively outwards the inner margins of the heel tabs while correspondingly increasing the number of temporarily inactive needles that are in the widening central group. Auxiliary points at the inner ends of the transfer points are operated to cause the auxiliary points to transfix previously knitted fabric at the plain side of the needles and to position it for reception by the needles that are progressively rendered inactive so that these needles retain fabric. The needles of the widened group resume knitting after the production of the desired heel tab length.

KNITTING. Knitting: loop transference in widening, etc. G. Wilders & W. G. Macdonald (to W. Cotton, Ltd.). Brit. P. 566 735. A straight-bar knitting machine for the production of full-fashioned blanks has carrier end stops capable of adjustment to decrease the traverse of a carrier and a mechanism for narrowing by loop transfer in step with the decrease in carrier traverse; this mechanism includes at least two transfer points. A mechanism is provided for imparting dipping and rising movements to the points to take loops from and restore them to the needles, and a mechanism racks the points inwards in the appropriate loop-transferring time relation with the dipping and rising movements. The machine is also provided with means for increasing the carrier traverse in widening, by two needles at each end, and means for racking the points outwards by one needle in the appropriate time to widen the fabric by a single needle outward transfer at each edge and for racking the points outwards idly through one needle space between successive transfers. The machine is therefore capable of narrowing, and also widening, by loop transference.

V, 6. Mechanical processing

WINDING FABRIC. Device for winding strips of fabric material. Glen Walker (to Steiner Sales Co.). USP 2 379 204, June 26. A device for winding woven fabric material, *e. g.*, roller towelling, comprises a high-speed driving roll; open-top guides; and a winding unit consisting of a shaft, and a tube permanently connected by means of two ball bearings to rotate on the shaft as a winding roll. The ends of the shaft are in direct contact and are freely movable in the guides so that the material-covered winding roll rests on and is speedily driven by friction against the material. The ends of the shaft are formed to prevent rotation, but permit free sliding and slight axial motions of the shaft in the guides and facilitate introduction of the shaft ends into the guides. The guides have rests for receiving the ends of the shaft with which to support the winding unit outside of the guides during preliminary wrapping of the end of the towelling about the winding roll, and before putting the unit into the

guides and before starting the winding operation with the driving roll.

STRIP-CUTTING MACHINE. W. T. Franklin (to Stirling Textile Industries, Ltd.). Brit. P. 566 335. "A machine for cutting materials into strips comprises a number of disc-shaped knives spaced on a rotatable shaft, and transmission means couples the shaft to an adjacent roller. The knives cut material fed between the knives and the roller, the knife shaft and roller being relatively adjustable to enable them to be correctly adjusted. The transmission means comprises belting to permit of such adjustment."

V, 7. Products; design; construction

ACETATE WORSTED MIXTURES. Acetate worsted fancy. A mixture material. Anon. *Am. Cotton Wool Reptr. 59,* No. 33, 17-8, 23, 25 (August 16, 1945). A fabric made from acetate rayon warp and worsted filling woven in a dobby weave is used to illustrate a lecture on the importance of understanding the roles of the fibers used in producing a cloth before undertaking its manufacture. Thus, this fancy worsted has the filling so thoroughly covered that it has the flexibility, softness and fullness of the rayon, and while it could be sold more cheaply than an all-wool worsted, it could be under sold by an all-rayon fabric that would look to be the same.

FABRICS FOR CONVERTIBLES. The convertible [auto] has some problems. A. P. Seedorff, Motor State Products Co. *Plastics 3,* No. 2, 40, 92 (August 1945). Development of textiles suitable for the top and upholstery of convertible autos is one of the chief things awaited by automobile designers. The upholstery materials must be water and fade proof, either dirt resistant or easily cleaned, durable, and varied in color and texture, and the top materials must, in addition, be mold resistant and either wrinkle proof or highly resistant to wrinkling.

FRICTION FABRICS. Fabrics for industrial uses. D. G. Hinchcliffe, Small and Parkes, Ltd. *Textile Weekly 36,* 190, 200 (July 27, 1945). Textile driving belts date from 1873 when Maurice Gandy produced a driving belt similar to the rubber ones for ply formation, but with the plys held together by longitudinal sewings. Also in 1873 Frank Redaway brought out camel hair belting, which was made so as to have the highest possible coefficient of friction. In 1885 the Dick brothers invented Balata belting. At present nylon, asbestos fiber, and rubber are being used in belts and in brake linings; and especially woven endless belts in which the filling is woven obliquely with respect to the warp, which is wound in a circle of pre-determined length, are the latest development.

RAYON CREPE. Rayon broken twill crepe acetate-viscose fabric. Anon. *Am. Wool Cotton Reptr. 59,* No. 31, 11-12, 40-41 (August 2, 1945). A special fabric is made from 2½ times as much by weight of acetate warp yarn as of hard twist regenerated viscose filling yarn and woven by the ordinary broken twill weave which places the acetate on the surface of the cloth. This material has the flexibility and shrinkage of crepe and the softness and smoothness of acetate.

STOCKINGS. Story of 51-gauge stocking. Joseph A. Conrad. *Am. Wool Cotton Reptr. 59,* No. 33, 19-20, 49 (August 16, 1945). The difficulties in making and dyeing fine silk thread for the two-thread silk ingrain thread used in knitting 51-gauge stockings; the troubles in securing needles, sinkers, and dividers for the knitting machinery; and the financial hurdles overcome by Mr. Conrad in his pioneering in the field of 51-gauge silk hosiery in the United States are told. The first stockings were made in 1919; they were trade marked in 1926.

TWEEDS. Difference between hand and machine made tweeds is great. Christopher S. Jones. *Textile Age 9,* No. 7, 74-6, 78 (July 1945). Not all the differences between hand- and machine-made tweeds, i. e., uniformity of weave, range of colors, and amount of natural oil retained in the cloth are wholly in favor of the machine product, according to this account of the characteristics of Harris, Shetland, Kerry, Connemara and Donegal homespuns, and of the methods used by mills and crofters of making the fleece into finished tweeds. For instance, Harris tweeds, which retain a large amount of natural oil, are more water-repellant than many cloths which have been treated with agents to make them water-repellant.

TWEEDS. Utility coating tweeds—development of colour and style features. "Portex." *Wool Record & Textile World 68,* 61, 64 (July 12, 1945). Color mixing, either by use of mixture wool yarn or by manipulation of two or more colors in both warp and weft, is a feature of tweeds. Several color combinations and weaving patterns are given. *Ibid,* 147, 150, 152 (July 26, 1945). All twist yarn fabrics are considered to have a good postwar market. Medium and lighter weights are preferred. Fairly high twist is necessary in two-folds. Where finer counts are spun (28 and 32 skeins) three-fold twists are employed to advantage for greater color variety.

WORSTED CLOTHS. Woollen and Worsted Costume Cloths. Colourings and styles. "Portex". *Wool Record & Textile World 68,* 105-6 (July 19, 1945). Examples of fabric construction for cross-bred worsted, Saxony woolens, basket-diamond designs, and Shetland homespuns are given.

PRESSED FELT. British Ministry of Aircraft Production. Specification 590. H. M. Stationery Office, London, April 1945. British Information Services, New York; price 6 d.

RAYON FABRIC. British Ministry of Aircraft Production. Specification 668. H. M. Stationery

Office, London, March 1945. British Information Services, New York; price 6 d.

V, 8. Applications: nontextile uses of fabrics

V, 8b. Coated or impregnated products

BONDING ARTICLES. Apparatus for bonding one article to another. George Stuhfauth (to Western Electric Co.). USP 2 380 269, July 10. Apparatus for bonding articles with fabric by means of thermoplastic resins, which have to be heated under fairly exact conditions to become sufficiently plastic without being volatilized or absorbed into the fabric, comprises a movable platform for supporting the article to be assembled, means engageable by an article on the platform for applying heat to the article, retractable means for engaging and moving the platform to engage the article with the heating means, and means for retaining the platform in the heating position and for disengaging the platform after a predetermined time.

CELLULOSE DISPERSIONS. E. I. du Pont de Nemours and Co. Australian P. 118 981. A process for coating fabrics consists in first applying a cellulose emulsion made from both solvent and non-solvent, *e. g.,* water, volatile vehicles in which the non-solvent is present in a high enough concentration to precipitate the cellulose derivative on the fabric during the evaporation of the vehicles, and in then applying to the "continuously coated fabric" at least one coat of a cellulose derivative, *e. g.,* cellulose nitrate, in a volatile organic solvent.

V, 8c. Laminates

FABRIC REINFORCEMENT. Reinforcement and moulded article. Franklin H. Mackenzie (to Alexander Smith & Sons Carpet Co.). Can. P. 428 585, July 3. A reinforcement for use in the manufacture of rubber articles comprises a pile fabric having alternate rows of pile and filler strips, the latter serving to keep the pile upright before and during the production of the molded article and being formed of a flowable material compatible with rubber and able to flow to fill the voids between the pile. One claim mentions the use of fillers made of rubber.

VI. FINISHING

FINISHING RIBBED WORSTEDS. Cord and ribbed cloths for women's wear. Anon. *Dyer & Textile Printer 94,* No. 1, 15-16 (July 6, 1945). Special ribbed worsteds for ladies' two-piece garments are often made of yarns dyed very delicate colors. Stains made during weaving must be removed by hand before the cloth is scoured; the scouring should be done "in rope form on the dolly type of machine" and the material should be passed through a spout set directly behind the scouring rollers; the cloth should be dried carefully with maximum tension across the width of the goods; and the cloth should be steamed lightly, thoroughly shrunk, allowed to dry after being hung in short folds, and pressed on the back only.

FINISHING WOOL. Finishing woolen and worsted fabrics. Anon. *Am. Wool Cotton Reptr. 59,* No. 28, 27-8 (July 12, 1945). Suggestions are given for burling, napping, fulling, and shearing ski cloth and melton cloth, as well as formulas for a fulling soap for fancy cassimeres and for kersey, broadcloths, Venetians, etc.; a formula for scouring soap for fancy worsteds; and recipes for brightening colors. During fulling operators are cautioned to avoid excess strain on the cloth, to secure smooth and level settings of the rolls, to machine the rolls to a uniform size when they become worn, to continue the fulling once it has started and rely on the time of fulling rather than direct measurement for obtaining shrinkage (expecially important on low grade goods).

WET FINISHING. Machines for wet processing. "Chemitex". *Textile Recorder 63,* No. 748, 49-51, 67 (July 1945). Crabbing, milling and fulling, and impregnating machinery for the wet finishing of woolens, cottons and linens is described with the aid of 24 diagrams.

GELATINOUS MATERIAL. Edward F. Christopher (to Industrial Patents Corp.). USP 2 379 065, June 26. The viscosity of gelatin and glue is increased by adding substantial amounts up to 25% by weight of deacetylated chitin.

STIFFENING MATERIAL. Frederic W. Chamberlain (to The Warren Featherbone Co.). USP 2 379 881, July 10. A stiffening material for use in corsets, airplanes, costume jewelry and the like which require localized stiffening at one or more zones comprises elongated rods interbound by cords, the interstices between which are filled with sizing, and the whole (rods, tenuous material, and sizing) shaped to the desired cross section; the central rod possesses inherent flexibility and resilience and the other rods possess inherent toughness and resistance to fatigue from flexure. Vinylidene chloride resin is the chief material claimed for the rods.

FANCY FABRICS. Fancy effects on fabrics by differential saponification. C. M. Whitaker, H. A. Thomas, C. C. Wilcock & C. P. Tattersfield (to Courtaulds, Ltd.). Brit. P. 565 731. Different effects, such as differential dyeing, can afterwards be produced on cellulose-ester fibers and fabrics that have been subjected to differential saponification by subjecting different areas of the material to pressure, and then treating with a saponifying agent.

VI, 5. Mercerizing

MERCERIZING. Mercerizing assistants. The Alkapens. Anon. *Fibre & Fabric 98,* No. 3155, 12 (July 21, 1945). Conditions for the efficient use of proprietary surface-active agents marketed under the trade name, "Alkapens" (Burkart-Schier Chemical Co.) are described briefly.

VI, 6. Sizing and finishing

FINISHING HOSIERY. Hosiery finishing

and related processes. Edward J. Siegrist, Holeproof Hosiery Co. *Am. Wool Cotton Reptr. 59,* 55, 57, 59, 63 (July 12, 1945). Intelligent selection among the numerous agents used during the past six or seven years for dulling, filling, stiffening, softening, splash and waterproofing, and plasticizing hosiery—the commonest materials in each class are mentioned—requires a knowledge of both the characteristics of the fibers to be treated and the effects of the agents on the wearing qualities of the hosiery. Laboratory tests for abrasion resistance, stretch and recoverability, tensile strength, and resistance to sagging are described briefly.

VII. COLOR

PIGMENTS. Some green pigments of the phthalocyanine series. J. W. Haworth, I. M. Heilbron, D. H. Hey, R. Wilkenson, and E. F. Bradbrook, Imperial Chemical Industries, Ltd. *J. Chem. Soc.* pp. 409-12 (June 1945). Synthesis of a number of tetraphenyl- and tetrapyridyl-phthalocyanines, their copper derivatives, and intermediates for the preparation are described. These are bright green pigments. The tetrapyridyl-phthalocyanine is basic and forms water-soluble quaternary salts.

PIGMENT DISPERSION. Process for dispersing pigments. Rodney Garrett Brown & Richard Russell Roberts (to E. I. du Pont de Nemours & Co.). USP 2 379 678, July 3. In dispersing an organic pigment dye, *e. g.,* an aryl amide of 2, 3-hydroxy-naphthoic acid combined with a diazo compound formed from derivatives of benzene or naphthalene (more specifically, the reaction product of *m*-nitranilid of 2, 3-hydroxy-naphthoic acid and diazo-*m*-nitro-*p*-toluidine) by transferring the pigment dye from a water slurry to an organic vehicle, *e. g.,* one containing cellulose nitrate, the colloidal pigment particles retained in the water are recovered by adding phosphoric acid or a mono-alkali metal phosphate in an amount about equal to the amount of colloidal pigment and mixing until the separated water is practically free of pigment.

VII, 1. Bleaching

BLEACHING. Peroxide Bleach. T. V. Punnose, University of Travancore. *Indian Textile J. 55,* 555-7 (May 1945). Punnose recommends dilute peroxide bleaching baths with ammonia, sodium silicate, and sodium phosphate as alkalis, at process temperatures around 100°F. Continuous operation methods for peroxide bleaching effect a saving of 60% in the cost of chemicals and produce goods which are said to be more absorbent than kier-bleached products and of equivalent tensile strength.

BLEACHING WOOL. Anon. *Textile Recorder 62,* No. 743, 46-8 (Feb. 1945). A review of current practice in bleaching wool as a preparation for dyeing in light pastel shades.

BLEACHING. Reduced oxycellulose formation during bleaching. The Mathieson Alkali Works. Brit. P. 566 291. In the bleaching and scouring of cellulosic textile materials by circulating an alkaline solution of a hypochlorite, an alkali metal chlorite, and an organic detergent through the material, and by raising the temperature of the solution and continuing the circulation at a higher temperature, the temperature of the solution in the early part of the operation is 85 to 95°F., and in the latter part is approximately 200°F. A good color and a decrease in the formation of oxycellulose is claimed for this method.

VII, 2. Dyeing

COLOR MATCHING. Idiosyncrasies in color matching by young and old. Daniel P. Knowland, Geigy Co., Inc. *Am. Dyestuff Reptr. 34,* P308-P310 (July 30, 1945). Variations in the matching of color with different observers in relation to changes in the eye in persons of advancing age are described. The author has observed that older persons frequently see dyeings as yellower than a younger person. Differences among observers are noted and tabulated. The article includes definitions of important terms used in color measurement.

COLOR MATCHING. Shade correction in colour matching. George E. Sheard. *Textile Mfg. 71,* 295-6 (July 1945). The practical measurement of color differences in the mill and the possible utility of spectrophotometric data are discussed briefly. For wool it is necessary to view *"on* the shade and *across* the shade." A partial solution is to prepare comparison standards, *e. g.,* one for tone and another for strength. Standard dye receipes are essential.

DYEING. Dyeing coarse English wool. Anon. *Dyer & Textile Printer 94,* No. 2, 63-5 (July 20, 1945). Sheep raised on moors of northern England have coarse wool containing numerous kemps. Chrome colors are used generally, and acid dyestuffs are used where necessary for shading. Some operators avoid use of surface-active agents on the grounds that the oil present assists in lubricating, teasing, carding, and spinning processes and should not be removed. Others contend that superior leveling of dyes, as well as resistance to rubbing, scouring, and milling, results with use of surface-active agents. Large amounts are dyed with "Afterchrome Black" in an unscoured condition. Logwood is also used, but the dyeings are dusty when the stock is dry. Methods of correcting for deficiencies of logwood dyeing are given.

DYEING. Modern methods of dyeing some manufactured fibers. Herbert G. Stull, Tennessee Eastman Corp. and Harold DeWitt Smith, A. M. Tenney Associates, Inc. *Am. Dyestuff Reptr. 34,* 303-6, 315-18 (July 30, 1945). The properties of fibers which are important for dyeing are discussed in relation to dyeing processes for viscose and ace-

tate rayons, nylon, and casein fibers. Typical formulas, procedures for dyeing, and methods of correcting difficulties are given.

DYEING. Two-colour dyeing of all wool materials. F. Townend. *J. Soc. Dyers & Colourists, 61,* 144-50 (June 1945). In many treatments of wool, dyeing qualities of the fibers are modified and this alteration in qualities may be employed for two-tone effects. Mixtures of chlorinated wool and normal wool are subjects of this paper. Color-contrast effects include three types: two components of mixture are two primary colors; two complementary colors; one dye with sufficient quantity of complementary dye to change color to grey or black. Procedures with colloidal and crystalloidal dyes are given. The behavoir of crystalloidal dyes in the newer methods depends on the basicity of the dye, and a mechanism is theorized.

DYEING AND FINISHING. Anon. *Textile Recorder 62,* No. 743, 44-5 (February 1945); No. 744, 49-50 (March 1945); and No. 746, 53 (May 1945). A review of progress for the year 1944 in dyeing and finishing textile fabrics, with some attention to probable postwar trends.

DYEING HOSIERY. K. G. Miller. *Southern Knitter 9,* No. 2, 34, 52 (February); No. 4, 40, 51-2 (April); No. 5, 30, 57-8 (May 1945). There are numerous textile chemicals for wet-processing hosiery and for use in dyeing. Principal uses and advantages are outlined for soluble (sulfonated) oils, inorganic and organic detergents, sulfated alcohol, and agents for penetration, levelling, reaction control and after-treatment of the treated goods. Methods for testing some of the newer textile assistants are discussed.

DYEING MACHINERY. Machines for dyeing hose, felt hats and garments. C. L. Bird, University of Leeds. *Textile Recorder 63,* 53-4 (July 1945). Pictures and short descriptions are given of the "Gorrie" Longclose oval paddle machine, the Longclose overhead paddle machine, the Samuel Pegg & Son multi-compartment machine, and the Samuel Pegg & Son Cassé hat dyeing machine, all of which are suited for dyeing hose, felt hats and other garments of small, shaped pieces of wool. Not only do the dye liquors circulate, but also the goods.

DYEING UNION FABRIC. Dyeing cotton and jute union fabric. A. Ellis. *Textile Weekly 36,* No. 905, 34, 36, 38 (July 6, 1945). Dyeing of solid colors on cotton and jute union fabric, woven from grey cotton and jute stock, is difficult because the jute fibers rob the cotton of direct cotton colors. Ways of getting around this difficulty—mercerizing the cotton by boiling the goods with *2%* caustic soda solution before dyeing, and shading the self-shade of the direct cotton dyestuff on the jute with neutral acid or basic colors—are explained fairly fully.

DYEING WOOL. How a colloid chemist would explain the dyeing of wool. P. H. Anderson. *Am. Dyestuff Reptr. 34,* 300-302 (July 16, 1945). The conditions used in dyeing wool are such that the pores of the wool are opened to admit the colloidal particles of dye and also make these same colloidal particles of dye smaller. Colloidal phenomena do exclude the strictly chemical reactions of the basic groups of the wool molecule with the acid groups of the dye.

DYEING WOOL. Current aspects of interest in wool dyeing. Henry E. Millson, American Cyanamid Co. *Am. Dyestuff Reptr. 34,* P284-90 (July 16, 1945). The use of as small amounts as possible of chrome in top chrome dyeing, the use of metallized dyes (Calcofasts, Neolans, and Palatines), and the development of machinery for the continuous dyeing of wool are discussed as the most important of the recent developments in wool dyeing. Photomicrographs (15) of cross-sections of partially dyed fibers and five graphs based on spectrophotometric measurements of the rate of exhaustion of typical dye liquors show that no matter what the type of dye and the method of dyeing, rapid and satisfactory leveling occurs only if the individual dyes used in the mixture are taken up at approximately the same rates.

DYES. Reduction by aqueous sodium sulphide and the application of resonance theory to the selective monoreduction of the alpha and beta dinitronaphthalenes. H. H. Hodgson. *J. Soc. Dyers & Colourists 61,* 171-2 (July 1945). The preferential reduction of the alpha-nitro group in heteronuclear alpha, beta-ditritronaphthalene by acid stannous chloride and of the beta-nitro group by alkaline sodium sulfide are explained on the basis of the resonance theory with data from absorption spectra.

DYES. The Sulfur Dyes. W. Norton Jones, Jr., Colorado State College. *Chem. Rev. 36,* 291-313 (June 1945). Colorants belonging to the class of sulfur dyes are numerous but not well defined chemically. The sulfur-dye industry dates from 1873. Generally the dyes are made by heating nitrogenous organic materials with sulfur, sodium sulfide or polysulfide, and other sulfurating agents. Sulfur is present in thiazole and mercaptan linkages. They are valuable as cotton-vat dyes, producing fast shades of yellow, brown, blue, violet, and black. A disadvantage is their sensitivity to chlorine. This review gives the history, classes, methods, properties, and constitution of sulfur dyes. 84 References.

DYESTUFF INDUSTRY. Origin of the American Dyestuff Industry. Anon. *Nat'l Canvas Mfrs. Rev. 21,* No. 4, 12, 14 (August 1945). A partial account of the rise of the U. S. dyestuff industry and the place of General Aniline and Film Corp., particularly since the war.

RAYON LINING. The dyeing of viscose-acetate rayon linings. II & III. Anon. *Silk & Rayon 19,* 431-2, 448 (April 1945); 546 (May 1945). Directions are given for dyeing and finishing rayon linings made of viscose-acetate blends. Since acetate and viscose rayons do not have affinity for the same types of dyes it is possible to carry out the dyeing operation in a single bath, but care in the selection of dyes is essential since some dyes for which one of the rayons or the other is alleged to have no affinity will actually stain the other yarn. Mangling is the best method of extracting excess water, but the fabric must be plaited down when it emerges from the mangle to avoid "water" markings. Fraying of the finished cloth is mitigated by treatment with synthetic resin emulsions. Stud breaking or calendering is used to soften up the texture. The latter process makes the goods less susceptible to scratching.

DYEING CELLULOSE ACETATE. Cellulose acetate dyeing. F. Hall & E. Sims (to Imperial Chemical Industries, Ltd.). Brit. P. 565 942. Fibers or sheets of cellulose acetate, etc., are dyed by including in the dyebath 5 to 10% of alpha-methacrylic acid, based on the weight of the dyebath.

MARKING INK. Marking ink for fabrics. National Marking Machine Co., Ltd. Brit. P. 566 317. A marking ink for fabric "comprises a liquid carrier having dissolved in it an acid salt of a colourless fluorescent basic compound, and is hydrolisable under heat to the said compound. The ink is capable of making marks which are invisible and insoluble in dry cleaning solvents. Upon application of heat and steam they still remain invisible, but become brilliantly fluorescent under ultra-violet rays, and soluble in dry cleaning agents."

VII, 2c. Vat

VAT DYEING. Pad-steam vat process recently developed. R. S. Stribling, U. S. Army, Philadelphia Quartermaster Depot. *Am. Wool Cotton Reptr. 59,* No. 28, 25-6, 33 (July 12, 1945). Almost any fabric can be dyed with vat dyes applied as follows: the pigment is put on by padding, reduced with chemicals applied by padding, thoroughly dispersed in the reduced form through the fabric by steaming less than one minute, and oxidized by conventional methods. The dyed cloth is soaped, rinsed and dried as usual. The results are said to be excellent in every respect. Herringbone twill is dyed by following the reducing pad with development in boiling soda ash. Terry toweling may be dyed by the reduced rope method. Other variations of the basic process are described briefly.

VII, 2d. Printing

TEXTILE PRINTING. Glucose in textile printing. A. M. Patel. *Indian Textile J. 55,* 548-54 (May 1945). Formulas (7) for printing pastes of vat dyestuffs with glucose as a reducing agent are given with notes on aging and after-treatments. The formulas are considered expedients.

PRINTING PASTE. Fast-to-washing printing paste. W. S. Miller (The Calico Printers' Association, Ltd.). Brit. P. 566 258. Bright colors fast to washing and rubbing are produced on textile fibers by fixing insoluble color lakes made by precipitating basic dyestuffs by means of lake-forming inorganic acids. The material is treated with an aqueous alkaline solution of the dyestuff and a water-soluble salt of the inorganic acid, and the insoluble lake is precipitated in the fiber by acidification.

VII, 3. Defects and dye failure; causes and prevention

DYEING. Cloth construction and dyeing faults. Anon. *Dyer & Textile Printer 94,* No. 1, 17-19 (July 6, 1945). Some difficulties that arise during the vat and sulfur dyeing of cotton and cotton-viscose mixtures, such as oxidation stains, unlevel dyeing, and the deposition of dye on the top of the fibers, arise from the weaves employed. Thus, ribbed cloths, when rolled, allow air to penetrate near the selvages; cotton ducks and poplins woven from hard spun and doubled yarns prevent full penetration of the dye liquor and hold so little of it they are easily oxidized during dyeing if the rolls stop, while terry cloths and heavy twills cause trouble by the large amounts of liquor they retain. Special dyeing techniques that overcome these difficulties are discussed briefly.

VII, 4. Pigment coloring

PIGMENT PRINTING. Pigment printing and dyeing, past, present and future. Arthur McLean, Aridye Corp. *Am. Dyestuff Reptr. 34,* P311-P314 (July 30, 1945). A brief history of the Aridye printing pastes and their development is given. The pigment in these pastes is attached to the fabric by thermosetting resins, and it is said that the pigment is physically bonded to the yarn or fiber. The advantages of this type of paste are (a) a large number of pigments have excellent resistance to light; (b) there is a wide range of colors available; (c) printing vehicles are capable of accurate reproduction of fine engravings; (d) resin binders exhibit softness of hand on delicate fabrics. The disadvantages of these printing pastes are (a) excessive crocking of dark colors; (b) deleterious effect of certain discharge agents on some pigments; and (c) the necessity for high temperature curing when maximum fastness to washing is required.

VIII. PROOFING

COATED FABRICS. War developments in the coatings industry. Laszlo Auer, Consulting Chem-

ist. *Chem. Industries 57,* 257-9, 325 (August 1945). Military requirements have spurred research in protective coatings, and civilian shortages have encouraged substitute and replacement materials. Many of these will survive as postwar products. For fabrics, brief notes are given on mildewproofing and fireproofing. Other products discussed are resins, paints, varnishes, and lacquers.

CELLULOSIC LACQUER. Julius G. Little (to Hercules Powder Co.). USP 2 379 974, July 10. A lacquer possessing a high gloss comprises an ester of a hydrogenated rosin acid and a polyalkylene gyycol having at least three alkylene groups connected by ether linkages, and for each 10 parts by weight of the ester, between about 5 and 80 parts of a film-forming cellulose derivative soluble in organic solvents and compatible with the ester.

VIII, 1. Waterproofing; weatherproofing; moistureproofing

GREASEPROOF AND WATER-REPELLENT PAPER. Carroll A. Hochwalt (to Monsanto Chemical Co.). USP 2 380 043, July 10. A combined greaseproof and water-repellent paper contains an N-acetylated aminobiphenyl, where the acyl group is that of fatty acids ranging from 12 to 28 carbon atoms. Stearic acid is claimed specifically because of its availability.

WATERPROOFING ROPES. Ropes, etc., with high wet tenacity. D. Finlayson & R. G. Perry (to H. Dreyfus). Brit. P. 566 371. Treatment of ropes and of yarns used in the manufacture of ropes, of regenerated cellulose comprises impregnating them with a water-resistant ester or ether of cellulose and treating the material with an esterifying or etherifying agent containing a long aliphatic chain under such conditions as to form on the material an ester or ether of cellulose containing the long aliphatic chain. Woven and knitted materials may be treated also, and the products have a good handle, are waterproof, and have a higher wet strength than the untreated material.

WATERPROOFING ROPES. Ropes, etc., with high wet tenacity. D. Finlayson & R. G. Perry (to H. Dreyfus). Brit. P. 566 378. Rope, twine, etc., of regenerated cellulose filaments are impregnated with a water-resistant ester or ether of cellulose to give a compact, strong-when-wet, and water-proof product that has a good handle.

VIII, 3. Proofing against microbiological attack

PRESERVATIVE. Cellulosic material preservative composition. Walter Paul Arnold & Ernest Russel Boller (to E. I. du Pont de Nemours and Co., assignor to Canadian Industries, Ltd.). Can. P. 428 511, July 3. Material containing cellulose is preserved by treating it with an aqueous solution in which is dissolved 70-85% anhydrous zinc chloride, 3-29% anhydrous cupric chloride, 1-2% arsenic pentoxide, and anhydrous sodium dichromate to make up the balance.

VIII, 4. Flameproofing

FABRIC, COATED, FLAMEPROOFED (FOR BEDDING COVERS). Joint Army-Navy Specification 27F11. Bureau of Supplies and Accounts, U. S. Navy, Washington, April 16, 1945; 7 pp.; gratis.

FLAMEPROOF SHRIMP NETS. Aridye Corp., Fair Lawn, N. J., n. d.; 6 pp.; gratis. Diagrams show how simultaneously to flameproof, mildewproof and dye netting with Aridye CFP colors.

VIII, 6. Shrinkproofing

WOOL SHRINKAGE PREVENTION. Wool's New Age of Discovery; New Methods of Preventing Shrinkage. Charles McCann. *Indian Textile J. 55,* 564-6 (May 1945). Of ten methods stated to be available for shrink-resistant treatment the following are mentioned: resin impregnation and dry chlorination. These and other treatments which improve the general quality of wool products extend the uses of wool.

SHRINKING WOOL. Tootal Broadhurst Lee Co., Ltd. Australian P. 119 424. Wool is preshrunk by treating it for a very short time, at most several minutes, with an acidified, chlorine-containing solution, and by removing the excess solution rapidly, so that only the outside of the individual fibers is attacked.

IX. TESTING AND ANALYSIS; SPECIFICATIONS

ADSORPTION. The properties of freshly formed surfaces. Part V. A velocity-time equation for adsorption to dynamic surfaces. C. C. Addison, Harris Institute Technical College. *J. Chem. Soc. 66,* 354-9 (June 1945). The dynamic surface tensions (vibrating-jet method) of aqueous solutions of *n*-alcohols were used to determine velocities of migration to the surface. The distance travelled by adsorbate molecules as calculated agrees with that predicted by the Gibb's equation. A mechanism for adsorption is deduced.

ADSORPTION. Low-pressure isothermals and heats of sorption. A. Graham Foster, Medway Technical College. *J. Chem. Soc.* pp. 360-6 (June 1945). Sorption isotherms of water, ethyl alcohol, toluene, dioxane, *n*-octane, and carbon tetrachloride on silica and ferric oxide gels at 25°C. were measured up to 0.5mm. All give a linear plot of p/c against p. Values calculated for a complete unimolecular layer show good agreement with previous estimates made at higher pressures.

ADSORPTION. The sorption of condensable vapours by porus solids. Part II. The validity of Gurwitch's rule. D. N. Broad and A. G. Foster,

Medway Technical College. *J. Chem. Soc.* pp. 366-71 (June 1945). Sorption isothermals of acetic acid, acetone, di-isopropyl ether, dioxane, *n*-hexane, morpholine, *n*-octane, toluene, and triethylamine were determined on silicia gel at 25°C. Amounts adsorbed at saturation decrease as the diameter of the adsorbed molecule increases, and the relations observed are explained on basis of tapering capillaries in the adsorbent. In these cases Gurwitch's rule does not apply. The number of molecules in a unimolecular layer decreases as the molecular diameter increases.

VAPOR SORPTION. Sorption of vapours by keratin and wool. G. King, Wool Industries Research Association. *Trans. Faraday Soc. 41,* 325-32 (June 1945). The sorption of water vapor by wool fibers has to be studied indirectly because of their very large surface-volume ratio. "Two indirect methods are available. Larger molecules, such as alcohols, can be used so that the diffusion process becomes slower . . . or the diffusion of water into horn can be studied. Horn has chemical and physical properties very similar to wool, and specimens can be chosen with a small surface-volume ratio so that diffusion into the bulk of the material is the rate-controlling process. Both methods have been used in the present work . . ." in which is reported the rates of adsorption and desorption of water, methyl alcohol, and ethyl alcohol. "The results confirm the conception of a diffusion coefficient which increases with concentration . . ."

MONOMOLECULAR FILMS. Reactions in monolayers. E. K. Rideal. *J. Chem. Soc.,* pp. 423-8 (June 1945). The technique of monomolecular (unimolecular) films (using quantities of reagents approximately 1 mg. per sq. meter) is an extremely sensitive micromethod for physical and analytical work. This review, based on an address, surveys several topics in the author's research: reaction velocities, adsorption, phase-boundary potentials, molecular structure, and biological phenomena.

REPORT ON PRODUCTION AND SALES OF SYNTHETIC ORGANIC CHEMICALS IN UNITED STATES, 1943. U. S. Tariff Commission, Washington, November 1944; 41 pp.; gratis.

XI, 1. Physical and Mechanical

STRAIN GAGE. The electric strain gage and its use in textile measurements. Harold Hindman and Cyril M. Krook, Mass. Institute of Technology. *Textile Research J. 15,* 233-246 (July 1945). This gage depends on a change in electrical resistance of a wire when strained. The instrument is comparatively simple in design, has no inertia in response, and can be made continuously recording. Mathematics of the design are given. Three applications are noted: impact tensile test for yarn and fabrics, a slow-speed compression test

and the continuous recording of rate of moisture regain for samples of fibers or fabrics.

RESULTS OF FIBER AND SPINNING TESTS FOR SOME VARIETIES OF UPLAND COTTON GROWN IN UNITED STATES, CROP OF 1944. U. S. Dept. Agric., Washington, April 1945; 21 pp.; gratis.

IX, 1a. Fibers

GRAPHIC SLIVER TESTER. Investigating the short period irregularities in cotton slivers and rovings. J. R. *Textile Recorder 63,* No. 748, 38-40 (July 1945). The Saco-Lowell Graphic Sliver Tester, which is widely used in the American cotton spinning industry for determining variations in cardroom products, especially the short-period variations, is described with the aid of a photograph and 14 typical charts are anaylzed in this admonition to the British cotton industry to modernize its testing equipment.

FIBER TENSILE. The tensile behaviour of raw cotton and other textile fibers. Reginald Meredith. *J. Textile Institute 36,* T107-T130 (May 1945). A comparison of the physical properties of cotton, bast fiber, rayon, silk and other fibers was made with respect to stress-strain relationships of individual fibers. Ramie, stretched viscose rayon, and flax have highest strength; next in order are nylon, silk, jute, cotton, viscose and acetate rayon, wool and casein fiber. Generally, the strongest fibers are the least extensible with the exception of silk and nylon which show a higher work of rupture than other fibers. Natural fibers are more variable than artificial (exception—casein fiber). Compared in terms of breaking load and specific strength, cotton and wool are most variable; nylon least. Data are collected in 11 tables and six charts. There are 55 references.

INSTRUMENTS. Electronic apparatus in textile testing. N. H. Chamberlain. *J. Soc. Dyers & Colourists 61,* 161-2 (July 1945). Two instruments are described briefly: a photoelectric photometer for the examination of luster, fading, measurements on yarns and other uses; a condenser-resistance bridge for the measurement of electrical capacity which may be employed in determining moisture regain, regularity of fiber arrays, and fiber identification. The potentialities of these instruments and test methods have not been fully explored.

SCALINESS. The Lepidometer, an instrument for measuring the scaliness of animal fibers. J. B. Speakman, N. H. Chamberlain, and J. Menkart. *The J. Textile Institute 36,* T91-T106 (May 1945). The lepidometer is an instrument for measuring the scaliness of animal fibers by determining the maximum tension developed when single fibers are suspended, root end downward, from a tension-measuring device, and rubbed between rubber or polythene surfaces. Measurements may be made

in air or in aqueous solutions. Uses of the instrument are described for the study of milling shrinkage and unshrinkable finishes.

IX, 1d. Textile chemicals and dyes

INSTRUMENTS. Tensimetric analysis of surface-active electrolytes. J. M. Preston. *J. Soc. Dyers & Colourists 61,* 165-6 (July 1945). The bubble-pressure method for surface-tension measurement is used as an end-point indicator in titrating solutions of surface-active substances.

IX, 2. Chemical

INSTRUMENTS. Chromatography. F. R. Cropper. *J. Soc. Dyers & Colourists 61,* 162-4 (July 1945). Chromatographic analysis depends on differences in the degree of adsorption of components in a mixture by a selected absorbent. The mixture is added to the top of a vertical column of adsorbent and the column is washed with solvent so that the components travel down the column at different rates and separate into distinct zones. Examples with dye intermediates are given.

INSTRUMENTS. Polarograph. S. Matthews. *J. Soc. Dyers & Colourists 61,* 164-5 (July 1945). The polarograph depends upon the electrochemical reduction or oxidation of substances in solution by the dropping mercury electrode. A gradually increasing potential is applied between the solution and the mercury electrode, and the current flow is measured. The curve of potential vs. current is characteristic for different substances, providing a useful analytical method.

IX, 2c. Fabrics; foils; films

FLAMMABILITY TESTS. Report of [the American Association of Textile Chemists and Colorists] Committee on flammability of consumer textiles. H. E. Hager, Chairman. *Am. Dyestuff Reptr. 34,* P291-2 (July 16, 1945). An automatic machine for testing the flammability of textiles, which is being built and is to be tried out by several laboratories, including the National Bureau of Standards, measures the time required for a flame applied at the bottom of a six inch sample of cloth to reach the top. The fabric is held at a 45 degree angle on a backing of spaced wires. The flame used in the tests is one inch long and is obtained by burning pure butane at a fine nozzle.

FLAMMABILITY OF TEXTILES. Frederic Bonnet, American Viscose Corp. *Fibre & Fabric 98,* No. 3154, 12-13 (July 14, 1945). Legislation adequate to protect the public from the use of dangerously flammable fabrics in clothing and house furnishings cannot be drafted until some adequate standard test for flammability is agreed on. The British law of 1914 is cited as being based on inadequate test. A standard test is the more necessary since cloth made from a given fiber is more or less flammable depending on the method used in its construction and on the relative humidity of the atmosphere in which an attempt is made to burn it, and because there is no relationship between flammability and origin of the fiber, i. e., under some conditions rayon, a synthetic is less flammable than cotton, a natural fiber, and some synthetics do not burn.

X. Waste Recovery and Utilization; Waste Prevention

TEXTILE MILL WASTE TREATMENT AND RECIRCULATING FILTER FOR SLAUGHTER-HOUSE WASTE. E. F. Eldridge. Mich. State Eng. Exper. Sta. Bull. No. 96 (Sept. 1942); East Lansing, Mich.; 23 pp.; price 25¢.

XI. CLEANSING

XI, 1. Laundering

WASHING MACHINE. Domestic appliance. Robert R. Candor (to General Motors Corp.). USP 2 378 392, June 19. An agitator for a washing machine is provided with a means for oscillating it, a lost motion connection between the unit producing oscillation and the agitator, movable projections for increasing and decreasing its size (in the specification this is stated to increase the effective water moving area on the power stroke and reduce the drag on the return stroke), and means actuated by the movement of the lost motion device for projecting and withdrawing the movable projections.

LAUNDRY WASHING MACHINE. John Edward Pointon and Frank Dewhurst (to Baker Perkins, Ltd.). Can. P. 428 492, July 3. In the outer stationary casing for a laundry washing machine, conduits for the wash water, etc., are formed integrally with the barrel wall and end portions.

LAUNDRY APPARATUS. Frank Breckenridge & Earl K. Clark (to Canadian Westinghouse Co., Ltd.). Can. P. 428 526, July 3. In an apparatus for washing fabrics and for extracting the washing water from them by centrifuging them there are means for agitating the fabrics at a relatively low speed for washing and rinsing, means for rotating the fabrics at relatively high speed to remove washing water, sources of hot and cold water, a timer to control the periods of washing and rinsing and the centrifuging, and means controlled by the timer for spraying cold water into the container during the final high-speed rotation of the fabrics to reduce the moisture content of the atmosphere within the washer.

XII. HAZARDS; SAFETY PRECAUTIONS

XII, 1. Fire

FIRE PREVENTION. Mule room fires. Points for their prevention. Anon. *Textile Weekly 36,* 178, 180, 182 (July 27, 1945). Fires in the mule room can be avoided by reducing the backing-off friction; by taking care when changing downbelts to have the new belts sufficiently long; by adequately lubricating

the rim shaft loose pulley, the rim shaft bearings, the rim-band carrier pulleys, the tin rollers, and the line shafts and counter shafts; and by having the tension on the rim-bands just right.

XII, 3. Occupational poisoning and diseases

BIBLIOGRAPHY OF INDUSTRIAL HYGIENE, 1900-43, SELECTED LIST. Ellen F. Bellingham, J. J. Bloomfield, and Waldemar C. Dreessen, Public Health Bulletin No. 289. U. S. Supt. Doc., 1945; 95 pp.; price 20¢.

XIII. TEXTILE MILLS

LABOR IN THE COTTON INDUSTRY. Symposium, Cotton Board's Recruitment and Training Department Conference, Kirkby, May 11-14, 1945. *Textile Recorder 63,* No. 748 (July 1945). Papers by: Sir Raymond Streat, Labour in the cotton industry, pp. 55, 59; Sir Robert S. Wood, British Ministry of Education, Educating the young worker, pp. 56, 64; Beryl Foyle, Boxfoldia, Ltd., Employee services in the small firm, pp. 57, 64; Robert Sutherland, M. D., Health in the mill, pp. 58-9; Dorothy Elliott, Nat'l Union General and Municipal Workers, p. 60; W. Hodgkins, Manchester University, People and production, p. 62; and C. Robbins, Internat'l Labour Office, The International Labour Office, p. 62.

LABOR RELATIONS. The foreman and grievances. W. M. McLaurine. *Cotton (U. S.) 109,* No. 6, 119-20 (June 1945). Since the foreman is the representative of management with whom the workers have the most contact, it is very important that the foreman avoid behavior constituting unfair labor practices as defined by the National Labor Relations Act. Moreover, he must have the reputation of being fair, thorough and quick in his decisions on workers' grievances.

LABOR RELATIONS. Labor "probabilities" —and how they affect you. Anon. *Modern Industry 9,* No. 6, 48-50, 52, 54, 56, 58, 60, 62 (June 15, 1945). In a forecast of developments in the field of employer-employee relations that may be expected in the postwar period, in which it is predicted that wages will continue high and unions strong although more protection will be afforded management, the chief labor problems confronting industrial personnel workers are outlined and the Federal agencies that can help with each problem are listed.

TROY BLANKET MILLS. Varied line of essentials made by Troy Blanket Mills. Anon. *Textile Age 9,* No. 7, 29-32, 34, 36, 38, 42 (July 1945). The Troy Blanket Mills are described in an article containing a brief history of the company, pictures and text showing the arrangement of the machinery, a list of the products normally made, and information on the company's employee benefit plans. Portraits of the Ripleys, who have been managing the mill since 1865, are also given.

BRITISH WAGE SCALES. Wage rates and other

conditions of employment for the elastic web industry. British Ministry of Labour and National Service. H. M. Stationery Office, May 3, 1945. British Information Services, New York; price 1 d.

COMMERCE AND MANUFACTURES. U. S. Supt. Doc. Price List 62, twenty-fifth edition, March 1945. Supt. Doc., Washington; 78 pp.; gratis.

XIII, 1. Buildings

BUILDING MATERIALS. New materials for plant construction. Alma H. Vallen, U. S. Dept. of Commerce. *Textile Bull. 68,* No. 11, 37, 40 (August 1, 1945). *Southern Knitter 9,* No. 8, 48, 50 (August 1945). New and improved building materials for postwar construction and modernization include: (a) "breathing walls" which minimize condensation on insulation; (b) impregnated fireproof wood; (c) aluminum at low prices; (d) waterproofing materials; (e) "acoustical" plaster; (f) improved plastic floor coverings; (g) rust-inhibiting compositions and heavy duty coatings; (h) heating and air conditioning equipment; (i) self-closing windows; (j) improved electrical wiring.

TEXTILE MILL DESIGN. Postwar trends in plant construction. John A. Wetzel, Robert & Co., Inc. *Cotton (U. S.) 109,* No. 6, 101-4 (June 1945). Radical changes in materials of construction and in types of industrial architecture are not expected immediately after the war, but such things as windows of insulated glass to prevent condensation in rooms containing highly humid atmospheres, wood treated with methylolurea to render it hard, and extruded aluminum roof coping are sure to be adopted because of their long wearing qualities. Building costs will be fairly high as is shown from figures on the costs of materials taken from *Architectural Forum.* An architect's drawing of a modern bleachery is included.

XIII, 2. Machinery

BEARINGS. Stanley D. Berg. *Textile Bull. 68,* No. 3, 31-2 (April 1, 1945). Applications of ball bearings are described with respect to the machinery in the opening and picker rooms, and in carding, spinning, slashing and weaving.

SELF-LUBRICATING BEARINGS. Self-lubricating bearings, with special reference to the textile industry. B. A. Goode, Glover and Goode Pty., Ltd., and S. Penwarden, Nilsen, Cromie Pty., Ltd. *Textile J. of Australia 20,* 128-31 (May 21, 1945). Two papers, dealing chiefly with the methods of making self-lubricating bearings by powder metallurgy and with their insertion into position in the machines for which they were designed, state that bearings of this type wear much longer than conventional, hand-oiled bearings, and that they require almost no attention, consume little power, and do not allow oil or grease to leak onto the yarn or cloth. Penwarden claims that "on applications where high speeds, heavy loads and continuous service are necessary, it will be advisable . . . [to take the bearing out of the machine and soak it]

in oil at about 150 deg. C. every six months. . . ." 1 Photomicrograph and 3 figures.

TEXTILE EQUIPMENT. Reequipment job for textile industry. Anon. *Am. Wool Cotton Reptr. 59,* No. 32, 11-12, 43-4 (August 9, 1945). To a great extent cotton, and to a lesser extent woolen, mills will have to install modern machinery, some of which is described briefly, in order to compete with the modern mills and to handle synthetic fibers for making blends. The most important of the new machines are stated to be roller clearer cards, long draft machines, automatic spooling devices, and improved slashers for cotton; and continuous warping and automatic weaving machinery for wools.

SEALING CELOPHANE. Sealing machine. James M. Humphrey (90% to Doughboy Machines, Inc.). USP 2 379 357, June 26, 1945. A portable, hand-operated machine for sealing celophane bags, etc., comprises a pair of cooperating sealing elements, one above the other, an upright tubular pedestal supporting the lower sealing element, a reciprocal lever extending through the pedestal close to its lower end, an operating linkage connecting the upper sealing element through the pedestal with the operating lever at the lower end, and interconnecting links between the upper and lower sealing elements to keep them parallel in both their open and closed positions.

WASHING PULP. Pulp-washing machine. T. J. Hedley & W. Kershaw (Bleachers' Association, Ltd.). Brit. P. 565 956. Cellulose pulp is washed or concentrated by projecting the pulp in a thin layer down one side of an inclined permeable member, such as a wire gauze. The liquid passing through the screen is withdrawn from the other side.

XIII, 3. Power

XIII, 3b. Electric

ELECTRIC DRIVE. Electric driving of textile factories. I & II. E. Howlett. *Textile Mfr. 71,* 227-31 (June 1945); 271-3 (July 1945). The operating characteristics of textile machinery, from the opening room through spinning, weaving, finishing and dyeing, are discussed in relation to the applicability of electric drive. Various types of AC and DC motors are described with observations on their use for operating textile machinery.

XIII, 4. Materials handling and transport

MATERIAL-HANDLING APPARATUS. Harry H. Merwin (to Western Electric Co., Inc.). USP 2 378 568, June 19. A material-handling apparatus for use in manufacturing electric cables comprises means to advance the textile core at a constant rate of speed, a rotatable and reciprocable unit for serving a strand of wire to the core, means to rotate the unit to cause spiral winding of the strand for a given distance about the core, and means to reciprocate the unit to cause a given length of the strand to lay parallel with the core.

PAPER-ROLL DISPENSER. Robert D. Gudlong (to Morton White & Co.). USP 2 379 275, June 26. A paper-roll dispenser of the type in which a jet of air is used to blow the free end of the paper strip over the roll so that it may hang in a convenient position comprises a support; a mandrel carried from the support adapted to receive a roll of paper with its free end hanging between the roll and the support; and a double acting blower having a piston and two air jets, one communicating with the blower space on one side of the piston and the second with the blower space on the opposite side of the piston, one of which jets is placed to discharge air initially to lift the free end of the paper as the piston is moved forward and the second to discharge air to drive the disturbed free end transversely across the roll as the piston moves to the rear.

SEALING MACHINE. Sealing machine and the like. Leon E. La Bombard (to The International Paper Box Machine Co.). USP 2 379 361, June 26. A machine that can be adjusted to operate on a single long article or a group of aligned short articles comprises a guideway; a continuously operating conveyor cooperating with it and having adjustable means to deliver a long article or a predetermined number of shorter articles to form a group not exceeding in length that of the long article; means for temporarily arresting the article or group of articles in a predetermined position on the guideway; and means for performing an operation on each article during the dwell.

CAMERA MAGAZINE. Irving W. Doyle (to Fairchild Camera and Instrument Corp.). USP 2 380 034, July 10. A film-feeding mechanism for a camera magazine consists in the combination of a film supply spool; an exposed film-spool; means for driving the latter spool to wind film on it, including a clutch; braking means to stop the rotation of the first spool after the winding operation; means for disengaging the clutch; and means operated by the clutch disengaging device to set the braking mechanism after the clutch is disengaged.

FILM-DRIVING MECHANISM. Camera film magazine and driving mechanism. Harry G. Cunningham. USP 2 379 690, July 3. A reel driving apparatus for a camera with a film feeding mechanism for advancing the film with a step-by-step movement, which rotates the take-up roller so that the linear velocity of the outer face of the take-up roller and the coil wrapped on it are the same as the average velocity of the film past the light aperture (*i. e.,* the linear speed of the film is imparted to the take-up roller at the face of the roller or of the coil of film wrapped on it), consists of a supply reel and a take-up reel both mounted on relatively fixed axes; a film guide between the reels through which the film passes in moving between the two reels; a guide roller taking film from the supply reel; means for imparting feeding movement to the film to impart rotation to the guide roller from the film in contact with it, and means for urging the guide roller toward the take-up reel to maintain operative

contact between the surface of the film on the guide roller and the take-up reel, and to impart the take-up rotation to it.

XIII, 6. Atmospheric control

DUST REMOVAL. Dust in cardrooms. A realistic solution of the problem. The Andrew Machine Construction Co., Ltd., and Atmospheric Control, Ltd. *Textile Weekly 36,* 119-20, 122, 124 (July 20, 1945). Sydney Holt of the Andrew Machine Construction Co. and C. V. Ward of Atmospheric Control, Ltd., have patented machinery for collecting the dust from carding engines. Hoods that are complete conditioning units for drawing in the dust and fly, for filtering the air, and returning the clean air to the card rooms at the rate of 2000 to 2500 cu. ft. per min. per card operate at ¼ h. p. per card. There is no lodgment of fly and dust on overhead fittings and projections and there is no interference with the normal duties of the strippers and grinders. Taker-in and doffer droppings from under the card are collected pneumatically and deposited directly in bags kept in the waste cellar by means of other machinery patented by the same inventors.

DUST REMOVAL. Pneumatic dust removal from cards. S. Holt & C. V. Ward. Brit. Pat. 565 905. The dust from cards is removed pneumatically through an exhaust box located in the floor beneath the machine, where possible, otherwise at one end of the machine. A damper allows a number of carding machines to be connected by exhaust boxes to one central trunk system, so that the exhaust action produced by the fan can be concentrated at one or more machines during stripping. Air inlets at about ground level, through which the filtered air is returned, impart motion to the air that ensures the sweeping of the dust. The system can be installed without disturbing the machines and is operated when each machine is stripped.

XIII, 8. Water supply

CALGON. Textile processing problems solved by use of Calgon. Anon. *Am. Wool Cotton Reptr. 59,* 29, 31, 33 (July 12, 1945). Troubles seemingly as diverse as streaky, dull and off-shade dyeing; crocked yarns; uneven starch sizing; unpleasant smelling woolens; stains on rayon crepe; and lack of proper bonding between rubber and fabric could be traced back to the presence of small amounts of mineral oil or lime, calcium, magnesium, copper or manganese salts in the dye baths or the scouring water. "Calgon," a vitreous sodium phosphate, corrects these conditions, as is illustrated by case histories taken from the files of Calgon, Inc.

XIV. TEXTILE RESEARCH

RESEARCH. Science and the South. Wilbur A. Lazier, Southern Research Institute. *Mfrs. Record 114,* No. 7, 42-3, 72 (July 1945). More research than can be done in colleges, Experiment Stations, and Federal laboratories is needed to enable the South to catch up technologically with the rest of the country. Small companies unable to start their own research laboratories should support fellowships in research institutes; colleges and universities must pay more attention to their science departments—more teachers and many more students are needed; and everyone cognizant of the value of research must "spread the gospel."

RESEARCH. The part played by management and the technologist in making research and development work effective. Norman A. Shepard, American Cyanamid Co. *India Rubber World 112,* 447-9, 454 (July 1945). The expansion in industrial research has focussed attention on efficient administration and coordination of the laboratory with overall planning. Essentials for successful research and development work are continuity of personnel with recognition of individual merit by adequate compensation, ample facilities, efficient division of duties in an organization, and coordination through an advisory committee.

ELEMENTARY STATISTICS. Hyman Levy and E. E. Preidel. Ronald Press, New York, 1945; 184 pp.; price $2.25.

Cited in *Am. Scientist 33,* No. 3, xxxiv (July 1945).

[NATURAL RESOURCES.] PRESENTING LISTING OF 1,000 PHOTOGRAPHS DEPICTING NATURAL RESOURCES OF UNITED STATES, MADE AVAILABLE FOR REPRODUCTION BY DIVISION OF INFORMATION OF DEPARTMENT OF INTERIOR. U. S. Dept. Interior, 1945. U. S. Supt. Doc., Washington; 44 pp.; gratis.

PUBLICATION OF RESEARCH, SUGGESTIONS FOR SCIENTISTS ON WRITING OF PAPERS AND REPORTS. E. W. Allen. U. S. Dept. Agric., Washington, January 1945; 18 pp.; gratis.

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